PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING AGENTS

Col. R. W. Johnson See page 83

Subcontracting May Save Small Business

A CONOVER · MAST PUBLICATION MARCH, 1943 35 CENTS PER COPY

GREATER RESULTS on the home front, too!

Official U. S. Navy Photo

MORE AND MORE ships like the above hurling depth charges to destroy enemy submarines are necessary to protect cargo vessels carrying the ever-increasing volume of output from the mines, farms and factories of America if our armed forces are to be supplied with the many things needed for achieving victory.

The necessity for maximum production is putting a terrific strain on equipment . . . thereby making effective lubrication more vital than ever.

So effective have Texaco Lubricants proved in increasing output that they are definitely preferred in many important fields, a few of which are listed in the panel.

A Texaco Lubrication Engineer will gladly cooperate with your operating personnel to increase the output in *your* plant. Just phone the nearest of more than 2300 distributing points in the 48 States, or write to:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.

TEXACO

TEXACO Lubricants and Fuels
FOR ALL INDUSTRIES

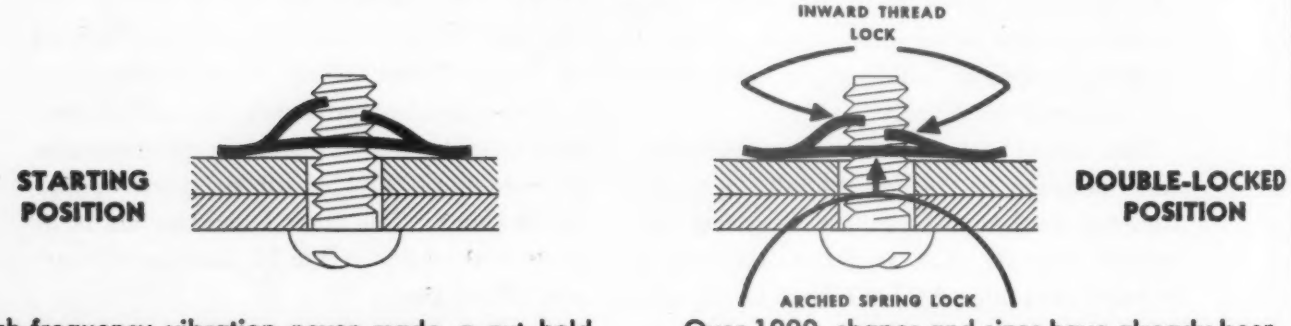
TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

PURCHASING, published monthly by Conover-Mast Company, Publication Office, Orange, Conn. Editorial and Executive Offices, 205 East 42nd St., New York. N. Y. Entered as second-class matter August 8, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription, $3.00 a year in the U. S. A. Canada and Foreign $4.00. Volume XIV, No. 3.

DOUBLE SPRING TENSION LOCK

Speed Nut System
(PATENTED)

conquers vibration loosening



High-frequency vibration never made a nut hold firmer. Speed Nuts are made to grip the bolt or screw with a double spring-tension lock to absorb vibration and prevent loosening.

The harder the jam, strain or pull to separate two assembled parts, the firmer the Speed Nut prongs grip into the roots of the threads. That is what makes them about 4 times tougher than other lock nuts.

Over 1000 shapes and sizes have already been put into production. Every Speed Nut or Speed Clip has saved from 50% to over 80% in assembly time and weight. Already this has saved countless man-hours time and tons of material. Our Engineering Dept. will gladly assist you on the proper approved locations where Speed Nuts give maximum engineering advantages.

TINNERMAN PRODUCTS INC., ★ 2050 FULTON RD., CLEVELAND, O.

IN CANADA Wallace Barnes Co., Ltd., Hamilton, Ontario

Simmonds Aerocessories, Ltd., London IN ENGLAND

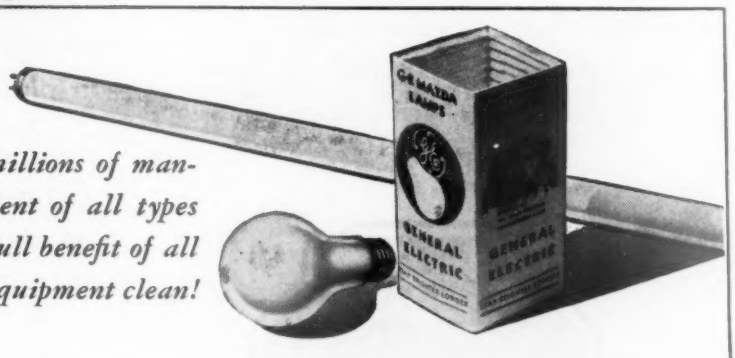
THE FASTEST THING IN FASTENINGS

ARE YOU THROWING AWAY 29 YEARS OF RESEARCH?

WHEN you allow dust and dirt to accumulate on lamp bulbs and fixtures you may be throwing away as much as half the light you're paying for. That means you're losing the benefit of many years of General Electric lamp research. In the case of the 300-watt bulb, for example, you are throwing away the 40 per cent increase in efficiency effected by G-E research since the lamp was introduced in 1914.

Why deny yourself the added light G-E research has given you? Start a regular cleaning schedule today! Get all the light you pay for! Where lighting units cannot be easily removed, a safety ladder should be used.

General Electric scientists have devoted millions of man-hours of research to the steady improvement of all types and sizes of G-E MAZDA *lamps. Get the full benefit of all the years of G-E research by keeping your equipment clean!*



G-E MAZDA LAMPS

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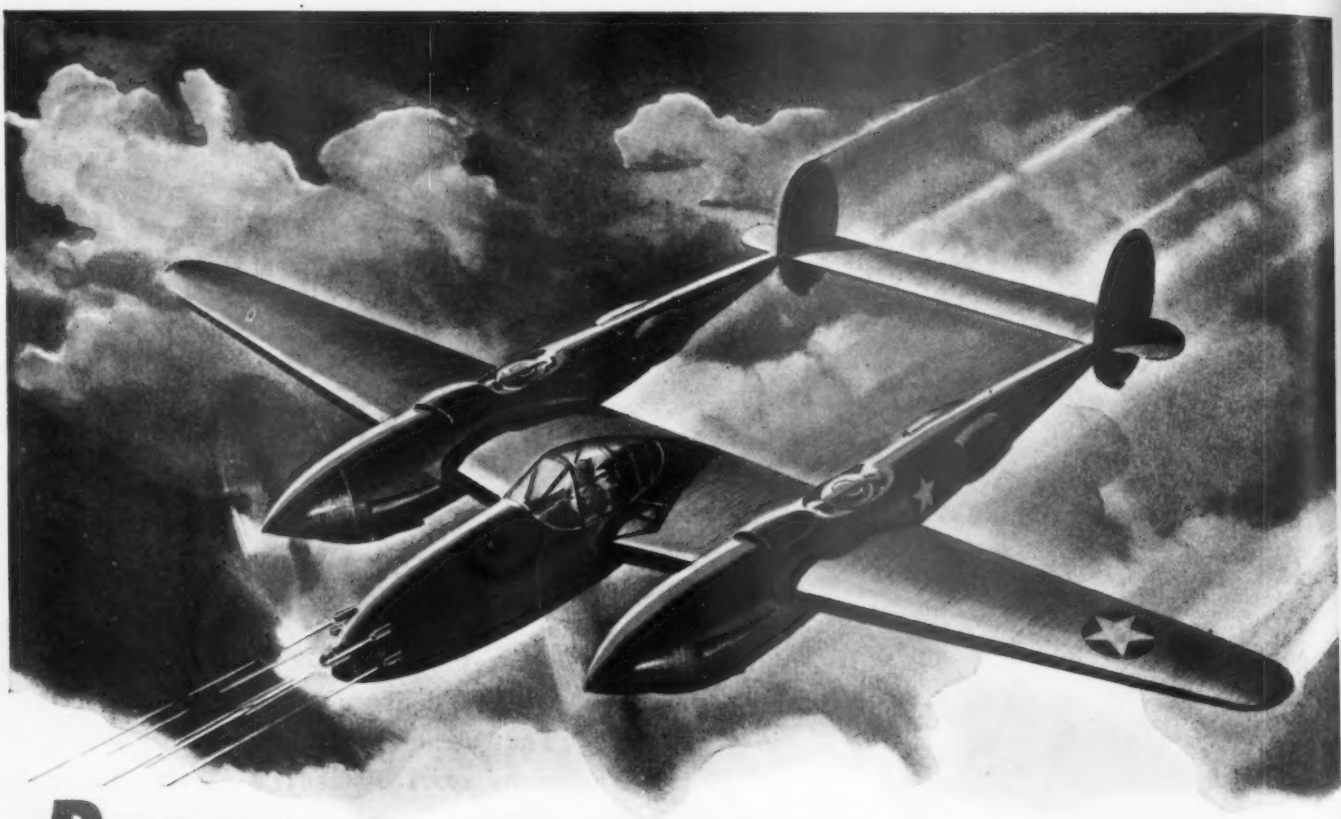

Brass...a *fighting* metal in our ships of air and sea

Brass Cannons on Old Ironsides Helped America Defeat Tripoli in 1805

Sheathed with copper and with brass cannons mounted on its decks, the *Constitution* was the flagship of the United States fleet that bombarded Tripoli and ended the ravaging of American ships in the Mediterranean by the Barbary pirates. Famous for its historic battle with the *Guerriere* off Newfoundland in 1812, it fought forty battles and never knew defeat.

NOW, as never before, brass is fighting for America—helping our forces to smash the Axis "on the shores of Tripoli" and elsewhere around the globe.

Western brass has met every battle test to which it has been subjected. It is playing a vital part in today's gigantic war production—in planes, tanks, guns, ammunition, trucks, and a long list of other fighting equipment.

First on the *production* front and later on the *battle* front, Western brass is doing its part in this all-out fight for freedom.

Western BRASS PRODUCTS
WESTERN CARTRIDGE COMPANY
EAST ALTON, ILLINOIS, U. S. A.

BRASS MILL DIVISION

Western Cartridge Company

East Alton, Illinois

BRASS • BRONZE • PHOSPHOR BRONZE • NICKEL SILVER

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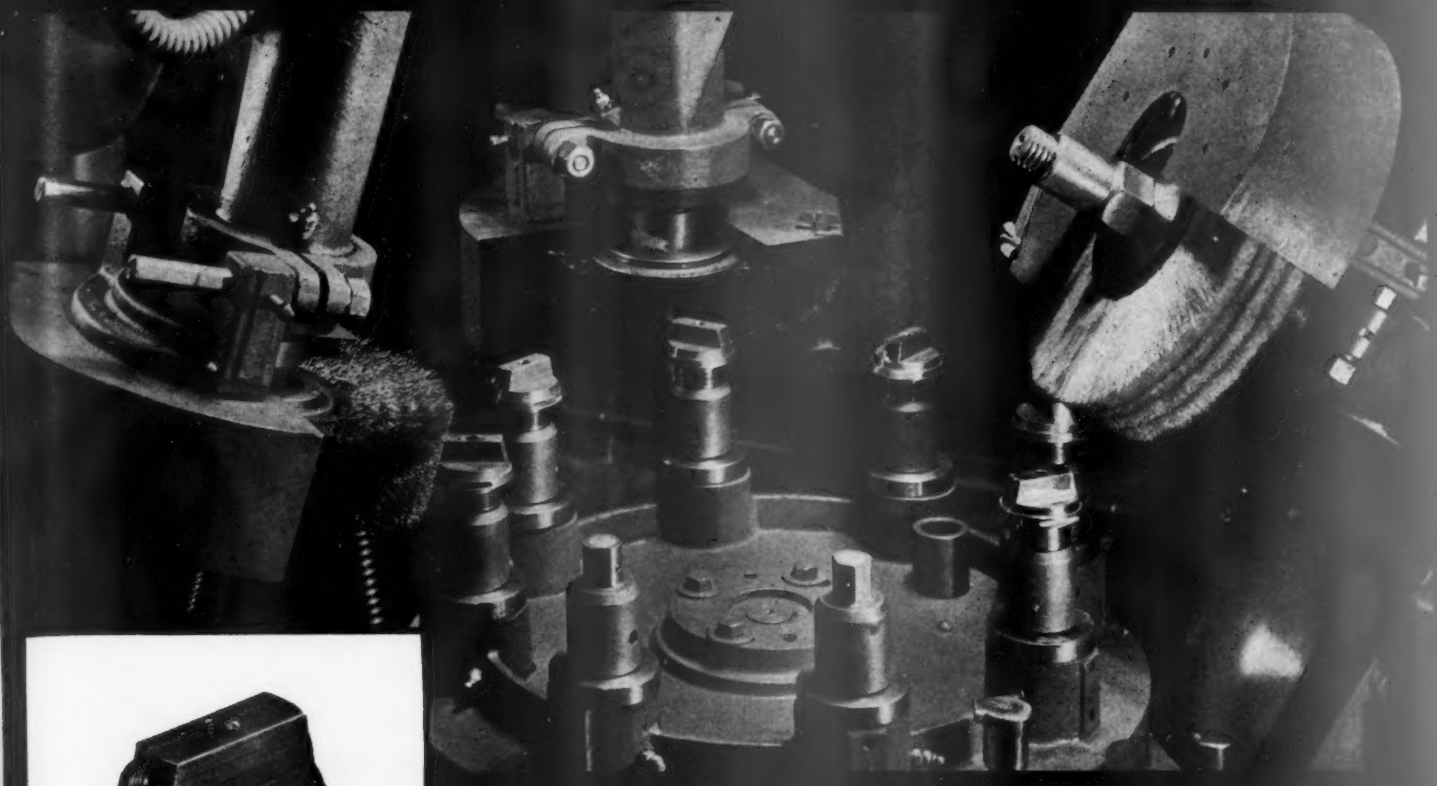


BEFORE BRUSHING

AFTER BRUSHING
(All burrs removed and corners broken)

Brushing Wheels

Gang Up to Speed Shell Production

ON their way through this automatic machine are some small metal pieces which shortly will be part of the delicate timing devices in shells.

To insure positive, accurate explosion of the shell, these parts must be finished to precision tolerances. To enable the fastest possible assembly, all burrs, metallic fuzz and sharp edges—"friction points" left by previous machining operations—must be eliminated.

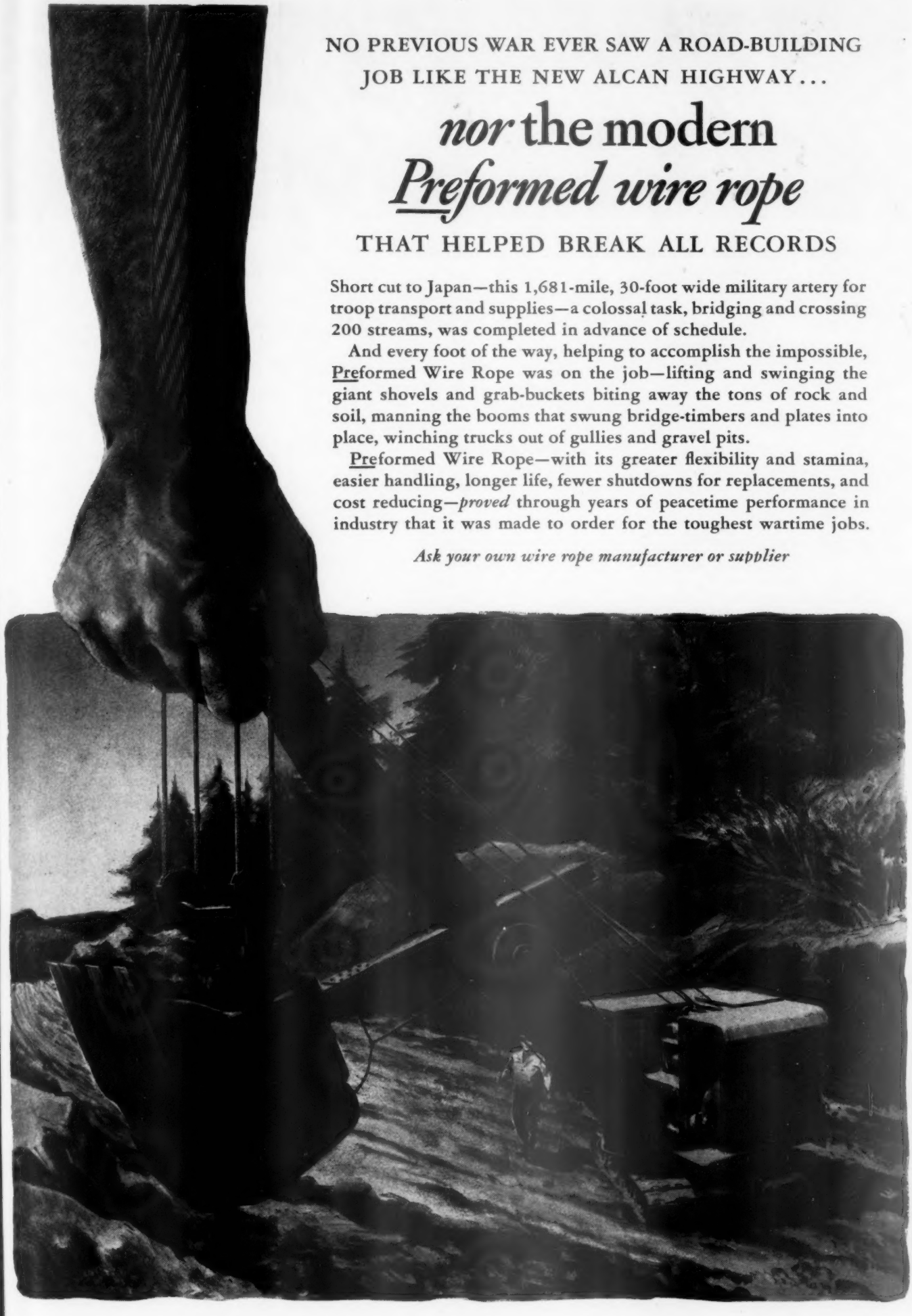
These parts were, and are, needed by the millions, but the specifications for meticulous finishing threatened to be a bottleneck so tight that actual production would be cut to a trickle of a few hundred a day.

How to get quality *and* quantity? One of the companies face to face with this problem had an Osborn Brushing Specialist analyze the job. He found that a combination of three Osborn Brushing Wheels, the Master Wheel, Disc-Center Section and "Fas-cut" Tampico Section, would do it, but in view of the tremendous quantities of identical pieces to be finished he also recommended using an automatic machine capable of 1200 to 1500 pieces per hour.

Now the threatened trickle is a river of accurate, finely finished shell parts, easy to assemble and positive in action. The services of the Osborn Brushing Specialist in your district are available to war plants for the asking. For help on specific burring, cleaning and finishing problems or for an O. B. A. (Osborn Brushing Analysis) of war-essential operations, get in touch with him today, through *The Osborn Manufacturing Company, 5401 Hamilton Avenue, Cleveland, Ohio.*

Osborn Brushes

WORLD'S LARGEST MANUFACTURER OF
BRUSHES FOR INDUSTRY



NO PREVIOUS WAR EVER SAW A ROAD-BUILDING JOB LIKE THE NEW ALCAN HIGHWAY...

nor the modern *Preformed wire rope*

THAT HELPED BREAK ALL RECORDS

Short cut to Japan—this 1,681-mile, 30-foot wide military artery for troop transport and supplies—a colossal task, bridging and crossing 200 streams, was completed in advance of schedule.

And every foot of the way, helping to accomplish the impossible, Preformed Wire Rope was on the job—lifting and swinging the giant shovels and grab-buckets biting away the tons of rock and soil, manning the booms that swung bridge-timbers and plates into place, winching trucks out of gullies and gravel pits.

Preformed Wire Rope—with its greater flexibility and stamina, easier handling, longer life, fewer shutdowns for replacements, and cost reducing—*proved* through years of peacetime performance in industry that it was made to order for the toughest wartime jobs.

Ask your own wire rope manufacturer or supplier

GET THIS "Know-How" Information FOR YOUR PLANT

USE COUPON BELOW

☐ **1. BLOWERS - BOOSTERS - EXHAUSTERS**—Bulletin on air blowers and exhausters, gas boosters, and industrial vacuum cleaning systems describes turbo and rotary blowers, stationary and portable vacuum cleaners, and positive displacement blowers and vacuum pumps. Allen Billmyre Corp.

☐ **2. MACHINE SCREWS**—Folder shows sizes, threading, and prices of cap, hollow set, flat head cap, and shoulder screws, in stock, and special sizes made to order; also dowel pins, hex keys, and pipe plugs. The Allen Manufacturing Co.

☐ **3. SAVING OFFICE SUPPLIES**—Under the title, "It's the Little Things that Count", this 12-page pocket-size manual preaches the importance, as a war-measure of rigid economy in the use of office supplies and gives specific instructions as to the best methods of prolonging the usefulness of items commonly used in offices. Allis-Chalmers Mfg. Co.

☐ **4. ROLLER CONVEYORS** — Eight-page brochure describes and illustrates conveyor applications, with charts on roller sizes, spacing of rollers, bearings, frames, and engineering information. Alvey Conveyor Mfg. Co.

☐ **5. MANGANESE STEEL** — Manganese steel and its constituents, and how it fits into the war picture, and the use of V-Mang welding rod and Hardfare welding rod, are described in 48-page catalog. American Brake Shoe & Fdy. Co.

☐ **6. PNEUMATIC HOLDING DEVICES**—Air operated three-jaw chucks, air cylinders, regulating accessories, and air operated shell holding equipment are pictured and detailed in blue-print form in 28-page catalog. Anker-Holths Mfg. Co.

☐ **7. COOLANT PUMPS** — Two compact portable coolant pumps are described in 8-page brochure, along with motor data. Pumps are easily adaptable to almost any machine tool, and are designed to meet peak production demands, reduce tool wear, and improve work finishes. Atlas Press Company.

☐ **8. TAPPING MACHINES**—Machines for precision tapping to Class 3 or Class 4 gage fits, for precison tapping in any desired material, and for tapping large and bulky pieces of work where it may be advantageous to move the tap around the work, are depicted in series of 3 booklets. Bakewell Manufacturing Co.

☐ **9. THREAD MILLING CUTTERS**—Types and use of multiple thread milling cutters are illustrated and described in 14-page brochure, which also discusses such matters as tolerances and sharpening, cutter setting, causes and remedy for chatterm correcting taper, etc. Barber-Colman Co.

☐ **10. ABRASIVE GADGETS**—Wall Chart carrying 12 illustrations and text shows how to do more and better work on small finishing jobs with abrasive bands, cords, points, pencils, mushroom pads and discs, and soltted discs. Behr-Manning.

☐ **11. PORTABLE ELECTRIC TOOLS** — "They Used Their Heads" is booklet on adaptation of portable electric tools to war production emergencies. Shows how they have been used to fill equipment gaps in unprecedented uses. Black & Decker Mfg. Co.

☐ **12. WIRE BASKETS**—Wire baskets for pickling, plating, cleaning hoisting, heat treating, drying, conveying, etc., are described in four-page bulletin. Baskets come in variety of shapes and meshes and metals, for special uses. Buffalo Wire Works Co., Inc.

☐ **13. GAS ANALYSIS** — How catalysis supersedes slow combustion in standard gas analysis apparatus and provides a faster, safer, more accurate method for the determination of combustible components, is described in small bulletin. Burrell Technical Supply Co.

☐ **14. HUMIDIFIER** — A new industrial humidifier which offers such features as installation singly or in multiple; no use of floor space; no distributing ducts; and easy transfer to other locations without interruption of production is announced in a 4-page bulletin. The device provides both humidifying and cooling by evaporation and air circulation and is particularly recommended for blackout buildings. Carrier Corporation.

☐ **15. PROTECTING COAL PILES** — Hot spot indicators and use of dry ice for cooling hot spots and smothering incipient bituminous coal pile fires, are described and illustrated in easy-to-read pages. Coal Specialties Co.

☐ **16. FINISHING LATHE** — High Speed lathe, 14" x 28" x 23", for polishing, grinding, burring, lapping and final operations on gears, dies gages, small parts and long

Continued on page 12

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LET'S WIN THIS BATTLE, TOO!

"***Hand tools are taking a terrific beating*** in the war factories. WPB estimates that because of improper use, the life of 75% of such implements is greatly reduced. Wear and tear appears to be greater on second and third shifts made up of less experienced workers."

—NEWSWEEK

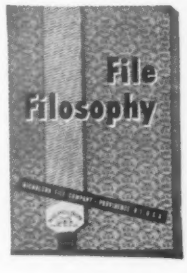
AMERICA! . . . Where ships are built in a fortnight! Where planes, guns and machines are produced by the thousands! Where manufacturing efficiencies are the wonder of the industrial world!

It is not at all like the American way to permit wastes like those reported in NEWSWEEK. Even under the stress of war production, tool misuse and abuse can be greatly lessened—*through education.* The millions of filing operations which take place daily in factories, machine shops and other industrial plants represent a wide field for teaching, training and savings.

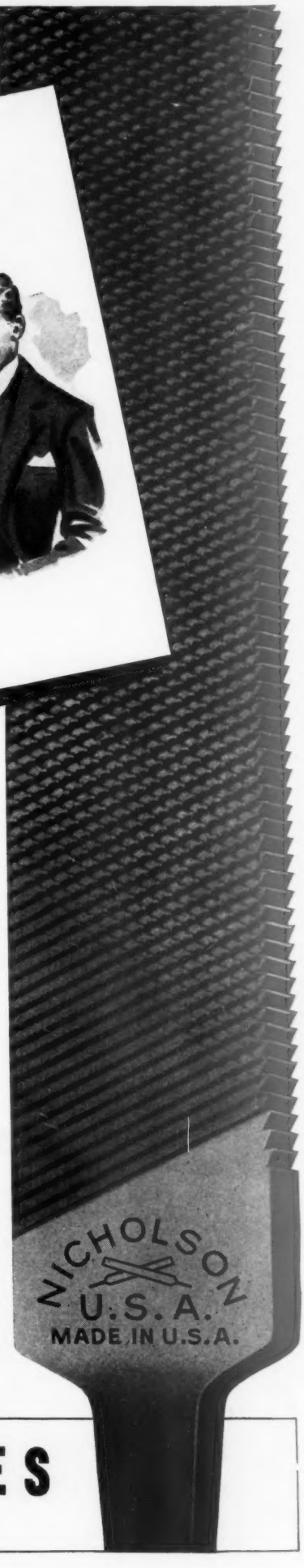
Toward aiding manpower—conserving materials—making files do more work and last longer—

THIS NEW BOOK WILL HELP

"File Filosophy," by Nicholson, is recently off the press. Send for it. It's FREE—48 instructive, profusely illustrated pages on files—their *many kinds, correct use, proper care* and how to select *The right file for the job.* "File Filosophy" will prove helpful to both men and managements. Enables production heads and foremen to pass valuable information along to workers eager to learn and ready to do their part in the war we *must* win.



NICHOLSON FILE CO.
28 Acorn Street
PROVIDENCE, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ont.)



NICHOLSON U.S.A. MADE IN U. S. A.

NICHOLSON FILES

FOR EVERY PURPOSE

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"Know-How" Information, Continued

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rods, is covered by bulletin. Collets easily changed; chucks may be used. Ample brake stops spindle quickly and smoothly. Colborne Mfg. Co.

☐ **17. MACHINERY STEELS**—Characteristics and machining qualities and applications of carburizing steel, alloy service steels, and collet steel, are contained in data and stock information booklet. Crucible Steel Co.

☐ **18. PROTECTING CONCRETE** — Use of fluosilicates or silicofluorides for superior wear-proofing and hardening of concrete and other porous materials surfaces—floors, walls, ceilings—at low cost, is described in 8-page bulletin. Can be used on new or old surfaces of concrete, cement, stucco, mortar, plaster or brick. The Davison Chemical Corp.

☐ **19. METAL STAMPING**—Brochure describes service for manufacturers who require limited number of metal stampings in small lots where cost of conventional dies would be prohibitive. Examples illustrated. Dayton Rogers Manufacturing Co.

☐ **20 POWER TRANSMISSION**—Catalog of 400 pages, with detail index of shafting, collars and couplings, hangers, bearings, rolling bearings, V-drives sheaves, pulleys, belt controls, gears, clutches, belt conveyors, etc., along with engineering data. Dodge Mfg. Corp.

☐ **21. INDIVIDUAL MOTOR DRIVES**—A motorizing unit, in standard and clutch models, available in 3-speed type for replacing 3-step cone countershaft and 4-speed to replace 4-step cone countershaft, is the subject of the 8-page folder "Drive-All System of Individual Motor Drives" for application to machine tools and a considerable number of special uses. Particular study has been given to providing a wide assortment of standard mounting brackets so that proper installation can be effected under a wide variety of different conditions. Horse power range is from 1 to 10. Any speed or make of motor with standard base can be used with the unit. Drive-All Manufacturing Co.

☐ **22. INDUSTRIAL TRUCK**—Power industrial truck is pictured in broadside describing the truck and giving detailed operating instructions for women operators, electric braking prevents momentum on grades. The Elwell-Parker Electric Co.

☐ **23. MAGNESIUM MELTING, ALLOYING**—Furnaces for melting and alloying magnesium, available in wide range of types and sizes, are described in 12-page bulletin which also shows plant layouts for reduction, melting and making permanent molds. Fisher Furnace Co.

☐ **24. PNEUMATIC LOADING**—Roll type machinery. Bulletin describes new method in which air pressure replaces weights, levers or other mechanical devices to establish the nip or pressure of roll-type machines. Explains how system increases production. Old machines can be changed over. The Foxboro Co.

☐ **25. ELECTRONICS**—A colorful, pictorial book tells by word and illustration how the electron is working today in war, in research, in industry, in radio and in television, and in agriculture. General Electric Co.

☐ **26. PLASTICS PARTS**—Designing molded plastics parts is subject of 16-page booklet, which covers inserts, shrinkage, tolerances, holes, undercuts, wall thicknesses, ribs, bosses, physical, chemical, thermal and electrical properties. General Electric Co.

☐ **27. MOTOR CONTROL** — Synchronous-motor control is subject of illustrated 12-page bulletin, which describes starting, accelerating, synchronizing, normal running, pull-out and undervoltage protection performed by magnetic and semi-magnetic types of full and reduced voltage controls. General Electric Co.

☐ **28. SILENT PLASTIC GEARS** — Two types of plastic, non-metallic gear materials — "FABROIL", consisting of compressed cotton fibers held together by steel shrouds and threaded studs, and "TEXTOLITE", consisting of woven fabric laminations held in compression by a phenolic resin—are described in a new book, "SILENT GEARS", just off the press. Also included are suggestions for machining, installation data, load and gear specifications, dimensions of gear blanks and instructions for ordering. The gears are recommended for use where reduction of vibration, chemical and dimensional stability, quiet operation and long wear are important considerations. General Electric Co.

☐ **29. OIL & GREASE SEALS**—Bulletin on Oilseals and Greaseals gives latest information, recommendations, applications, diagrams, listings and prices, on line of seals which are said to provide positive bearing protection. Gits Bros. Mfg. Co.

☐ **30. MOLDED RUBBER GOODS**—Eight-page section in question and answer form, designed to supply purchasing agents and others with practical information on the use, application and development of rubber parts molded to fit specific industrial requirements. The B. F. Goodrich Company.

☐ **31. EQUIPMENT VIBRATION** — Vibra-Insulators and their function in isolating vibration of machinery and equipment, types and application, are described in 12-page brochure which is accompanied by question work data sheet for proposed installation. B. F. Goodrich Co.

☐ **32. PILOT LIGHTS**—Pilot light assemblies for marine, aircraft, signal corps, and industrial applications, are described in

Continued on page 14

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"Know-How" Information, Continued

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eight-page folder. Complete range of types and sizes shown with diagrams and prices. Gothard Manufacturing Co.

☐ **33. CARBIDE GRINDERS**—Chip breaker grinder, 6 in. carbide tool grinder, wet or dry 10" and 14" carbide tool grinders, wet tool grinders, and tool and snagging grinders are detailed in eight page illustrated bulletin. Hammond Machinery Builders.

☐ **34. PLASTIC TUBING**—Chemically resistant plastic tubings and fittings for permanent replacement of strategic materials are described in 4-page folder, along with data on technical and physical properties, and standard and stock sizes. Hodgman Rubber Co.

☐ **35. FUEL CONTROLS** — Sixteen-page manual on controls for fuel conservation offers suggestions on equipment selection for natural draft coal burning, automatic stoker firing, chain grade and spreader stoker operation, forced draft hand firing, and natural draft oil burning. The Hotstream Heater Co.

☐ **36. TRANSMISSION EQUIPMENT** — Variable speed pulleys and variable speed transmissions, together with motor bases, are the principal topics of the 52-page "Ideal" Catalog and Handbook and plentiful engineering data in the form of tables and graphs is included as to their advantages and applications. At the rear of the book is a section devoted to a range of small specialties such as demagnetizers, etchers, wheel dressers, markers, cleaners, brazers, soldering tools and other related items. Ideal Commutator Dresser Co.

☐ **37. SPEED REDUCERS** — Motorized speed reducers, motorless speed reducers, 1/50 to 10 h.p., starters, mechanical modifications for speed reducers and motors, specifications, mounting prices and other data are contained in 100 page catalog. Janette Manufacturing Co.

☐ **38. PEDESTAL GRINDERS** — Two- or three-horsepower tool room pedestal grinder, 1800 rpm, 2 or 3 phase, A.C., 220, 440 or 550 volts, is described in new bulletin; motor control, tool rest and wheel guards. The Lima Electric Motor Co.

☐ **39. MILLING MACHINE** — Four-page bulletin illustrates and describes high speed milling machine base which accomodates any make of high speed milling head; attachment for milling, drilling, or boring; and extra parts and accessories. Specifications for table size, etc., shown in chart. Lincoln Machine Splty. Co.

☐ **40. PAINT STICKS** — For marking hot or cold, wet or dry surfaces, metal or wood, made of real paint and available in six distinctive colors, are described in small folder. Temperature range for hot metal markers is 180 to 1800 deg. F. Markings are fadeproof and weatherproof. Markel Co.

☐ **41. SOLVING HARD CLEANING PROBLEMS** — Laboratory analysis of difficult cleaning problems whether in metal finishing, cleaning locomotives and coaches, or in the aircraft, steamship, motor, electroplating or other industries, is part of industrial cleaning service described in four-page folder which declares that no cleaning job exists that cannot be done with utmost satisfaction from the standpoint of economical and faster work. Magnuson Products Corporation.

☐ **42. MATERIALS HANDLING BY LIFT TRUCK**—An informative piece of literature for the industrialist confronted with materials handling problems. Describes the power truck skid method of handling and the types of equipment available for such a system and the purpose of each. The high, low and telescopic types of trucks are featured. Mercury Manufacturing Company.

☐ **43. WELDERS** — Industrial welders for manual or automatic welding, (power factor corrected), and new A-C arc welders for general work in the average shop, are described in two bulletins. Money saving in "nine different ways" is claimed for the industrial welders which come in six models; standard accessory packages available. Miller Electric Mfg. Co.

☐ **44. CHEMICALS** — Designed to be a compendious reference book and catalog on chemicals, this 170-page volume contains not only detailed information on several hundred chemicals and plastics but also a general technical section giving tables of physical constants for some of the more common chemicals. Distribution of the book is limited and requests for it should be made on company letterhead and sent direct to Monsanto Chemical Co., St. Louis, Mo.

☐ **45. INDUSTRIAL SWEEPER**—Four and six page catalogs illustrate and describe power industrial sweeper, easily operated by women, powered with 2 h.p. governor controlled engine; speed ½ to 3½ mph; tractor wheels have 15 in. pneumatic tires. Automatic sprinkling system available. Manually operated model will clean 1600 sq. ft. per hour. The Moto-Mower Co.

☐ **46. V-BELT DRIVES**—"23 Ways to Conserve the Life of Your Multiple V-Belt Drives" is an association-sponsored manual of 16 pages, featuring graphic illustrations accompanied by brief, non-technical explanations such as even unskilled employees should readily grasp. A foreword makes the point that belt-life is being used up at a rate two to three times faster than normally and, hence, every possible conservation measure should be adopted. Multiple V-Belt Drive Association.

☐ **47. MARKING MACHINES**—Equipment for marking any size, shape or type of

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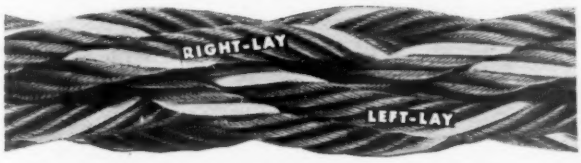
Handle with care — but hurry!

YOU DO BOTH WITH THE SLING WITH THE DOUBLE-S* GRIP

** the sling that handles loads with* **both** ***SPEED and SAFETY***

Take a good look at the construction of the Macwhyte Atlas Wire Rope Sling. This sling, "hurrying" production of war materials in plants all over the U. S., provides unquestioned safety because of its special construction. Two



endless wire ropes, each of opposite lay, are spirally woven throughout. The result is a perfectly balanced sling body. In addition to safe and speedy materials handling, Macwhyte Atlas slings have many advantages:

• *Light-weight, flexible, easy to handle* • *Positively non-spinning* • *Kink-resistant* • *Non-damaging to loads* • *Balanced construction of left-&-right lay endless ropes* • *Store in small space* • *No splices to wicker* • *Terminate in natural loop-ends* • *L-O-W final cost*

"Keep 'em rolling"... but do it with SAFETY!

*Speed Plus Safety

MACWHYTE ATLAS Braided Wire Rope SLINGS

"The sling with the perfectly* balanced *body"

MACWHYTE COMPANY. 2918 Fourteenth Ave., Kenosha, Wisconsin. Manufacturers of wire rope to meet every need — "ATLAS" Left-&-Right Lay Braided Slings—"DREW" flat braided wire rope slings—"MONARCH" Standard rope slings and grommets—Aircraft Cable, Aircraft Tie-Rods, and "Safe-Lock" Swaged Terminals.

MILL DEPOTS: New York • Pittsburgh • Chicago • Fort Worth Portland • Seattle • San Francisco. Distributors throughout the U.S.A.

NO. 659-9

CONSULT MACWHYTE ON YOUR SLING PROBLEMS

For years we have been making many types of slings, for many kinds of jobs. We're busier today than ever before . . . supplying Macwhyte Atlas Slings to war production plants all over America.

Ask us for suggestions on how to move your loads fast WITH safety. Plan your sling needs as far in advance as possible. Tell us the kind of work to be done; we'll suggest the type of sling to do it.

Take special care of your slings. By so doing you can make them last longer, help yourself, and aid the war effort. That's what YOU want; that's what your country asks of you.

Time and materials are vital. On sling problems, consult Macwhyte. Save both time and materials.

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"Know-How" Information, Continued

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material, such as glass, wood, plastic, metal, cloth, paper, abrasives, painted surfaces, rubber sheets, etc., with inks of special compound, by coloring or indenting, are described in 8-page bulletin. Markem Machine Co.

☐ **48. INSPECTION STAMPS**—Folder describes variety of stamps for use with regular inks on absorbent materials, or with special inks and acid etching fluids for marking metal parts and products. Line includes pocket style, peg and pin, pencil top and other types of stamps including steel inspection stamps. Jas. H. Matthews Co.

☐ **49. CLEANING** — Degreasing maintenance cleaning materials, methods and technique, are described in 40-page manual which contains data on preparing aluminum alloy parts, degreasing ferrous and non-ferrous metals, cleaning aluminums, magnesium and their alloys, rust-proofing, and equipment and plant cleaning. Steam-Detergent Cleaning is described in another manual. Oakite Products, Inc.

☐ **50. DIE-LESS DUPLICATING** — Process for die-less duplicating and forming of parts to die accuracy without time delay or expense of dies and die sets, is depicted in 32-page book. Questions & Answers page explains equipment, use, and "Know How" of Di-Acro System. O'Neil Irwin Mfg. Co.

☐ **51. BAGGING EQUIPMENT**—A device for filling pouch-lined cartons with powdered eggs, dehydrated vegetables and comparable commodities is illustrated and explained on a single-sheet bulletin. Hair-line flow control with a manual flow-control lever is emphasized as assurance of exact weights and quick adaptation to various sized bags and carbons is also claimed. Pack-Rite Machine Corp.

☐ **52. PORCELAIN PROTECTED WIRING SYSTEMS**—Emphasizing the fact that porcelain protected wiring systems conserve critical materials, this 32-page installation manual and data book is prepared for the information of industrial electricians, engineers and architects in connection with the planning and installation of knob and tube wiring. Illustrations are liberally used to illustrate the possibilities of the procedure. Porcelain Products, Inc.

☐ **53. PETROLEUM TESTING APPARATUS**—Interspersed through this 96-page catalog of a comprehensive range of apparatus and laboratory instruments is considerable information of a general character having to do with specifications of the A.S.T.M., Federal Specification Board, British Petroleum Institute and other governing bodies. A compilation of tabular data on thermometers used for petroleum inspection is also included. Precision Scientific Co.

☐ **54. PRODUCTION TOOLS** — Ordnance and aircraft tools are described in 28-page catalog—toggle clamps, drill guide pressure foot, drill jig bushings, dimpling sets, flush rivet and standard sets, multi-utility drivers and bits, locating pins, etc. Products Engineering Co.

☐ **55. POWER TRANSMISSION** — Chains, Sprockets and Couplings for positive power transmission, with length, pitch and price data, and miscellaneous information on roller bearing joint, installation and maintenance, are described in detail in 64-page catalog. Ramsey Chain Company.

☐ **56. TAIL PULLEY**—A design of tail pulley for use with bucket elevators and on belt conveyors which, by its cone and wing construction, reduces the possibility of belt-damage from grinding and crushing action of material between belt and pulley, is featured in a 4-page circular. Comments of users make up a large part of the text matter. Sprout-Waldron & Co.

☐ **57. FILTER CLOTHS**—Small folder with samples of impregnated cotton, woven glass, vinyl plastic filament, and coarse weave filter cloths, describes their uses for industrial filtraton. Wm. W. Stanley Co.

☐ **58. BALL-BEARING MOTORS**—Advantages of ball bearings in motors is described in bulletin, along with general description of Valley squirrel-cage, polyphase motors. Valley Electric Co.

☐ **59. CMP INDEX**—How to design visible record system especially adaptable to C.M.P. is described in 8-page folder. System is said to be simple, flexible and highly efficent, providing for gradual PRP to CMP changeover as well as for new CMP records. Visible Index Corp.

☐ **60. VALVES**—Globe and check valves in bronze, forged steel and cast steel, are described in two-color 36-page reference book divided in six sections according to types and identfed by tabs. Pressure ratings, dimensions, and prices shown. Watson Stillman Co.

☐ **61. CIRCUIT BREAKERS**—For lighting, distribution and power circuits up to 600 amperes, line of Nofuze De-ion circuit breakers is described in new 40-page booklet. Principles, quenching-action, attachments, etc., are explained. Westinghouse Electric & Mfg. Co.

☐ **62. THERMOMETERS** — Series of five new bulletins describes line of industrial indicating, recording thermometers, or combinations, with information to aid user make proper selection. "Electronic principle" of control without mechanical contact between measuring and control sections is described. Program and proportioning thermometers in recording and indicating types are also described. Wheelco Instruments Co.

PURCHASING 205 EAST 42ND ST., NEW YORK, N. Y.

Please send me the "Know-How" Information checked.

48 ☐ 49 ☐ 50 ☐ 51 ☐ 52 ☐ 53 ☐ 54 ☐ 55 ☐ 56 ☐ 57 ☐ 58 ☐
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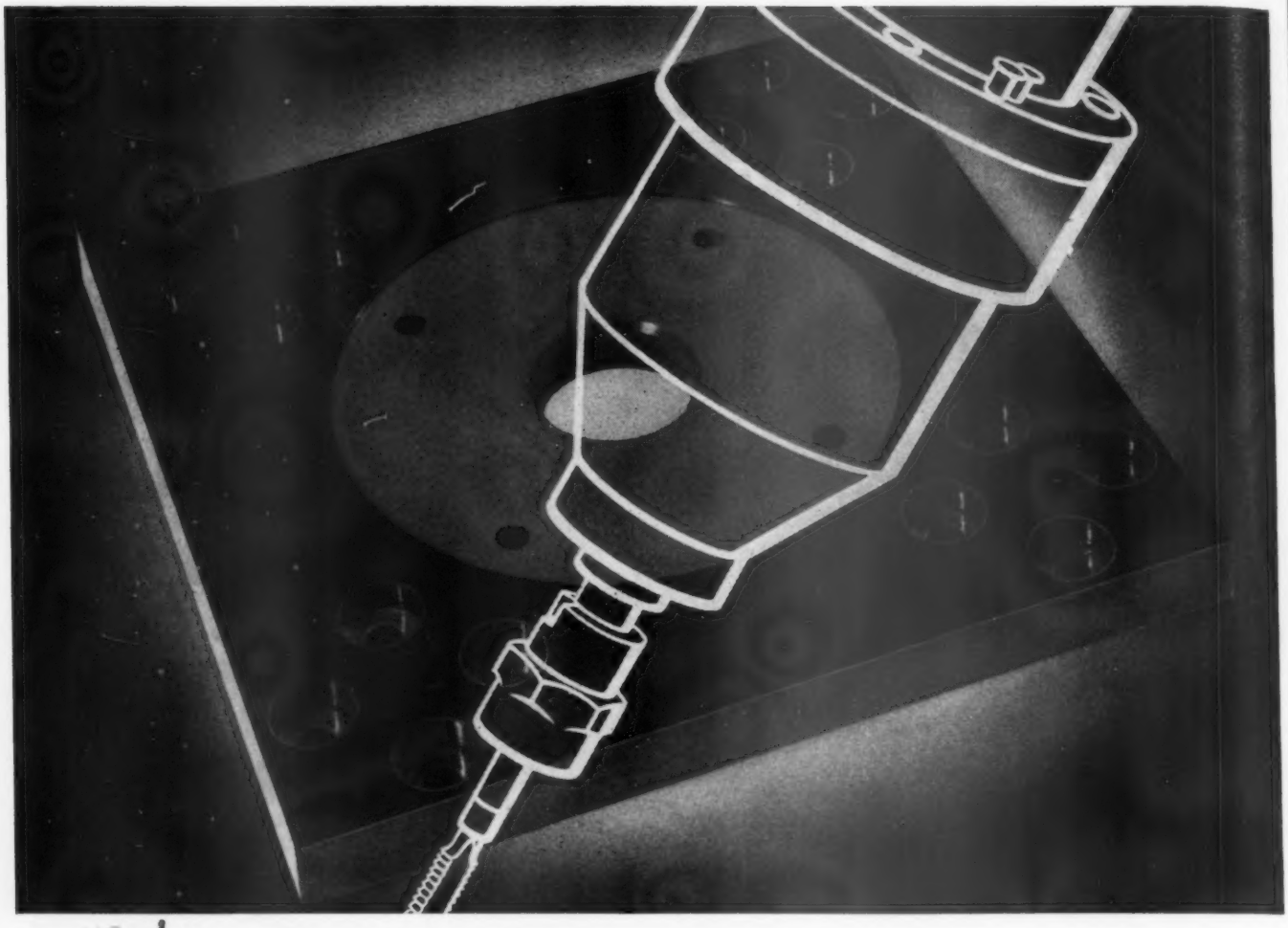
When writing Skilsaw, Inc. please mention Purchasing



Drilling For Military Service

Made Easy for Rookies

"ROOKIES" in the machine shop now have to produce parts and finished products faster and in greater quantities than used to be expected from veterans.

That's another reason why INSUROK has won such wide approval among war products manufacturers. No special machinery or unusual skill is required for the fabrication of INSUROK. In drilling, for example, just use standard twist drills. Where quantity production is required, Tungsten-carbide tipped drills are recommended, if available.

If you have a fabrication problem, *Richardson Plasticians* will be glad to suggest efficient methods of production. Just send in your designs for their recommendations. If you do not have data covering the various grades of Laminated or Molded INSUROK, write for them.

The Richardson Company, Melrose Park, Illinois; Lockland, Ohio; New Brunswick, New Jersey; Indianapolis, Indiana. Sales Offices: 75 West Street, New York City; G. M. Building, Detroit.

INSUROK *and the experience of Richardson Plasticians are helping war products producers by:*

1. Increasing output per machine-hour.
2. Shortening time from blueprint to production.
3. Facilitating sub-contracting.
4. Saving other critical materials for other important jobs.
5. Providing greater latitude for designers.
6. Doing things that "can't be done."
7. Aiding in improved machine and product performance.

INSUROK

MADE AND SOLD ONLY BY THE RICHARDSON COMPANY

When writing The Richardson Company please mention Purchasing

ATKINS

always at the service of SHELL MANUFACTURERS

who want to speed up shell stock cut-off

Find out how new high speed saws plus new cutting techniques are boosting output for shell producers . . . . . .

● Vastly increased output on shell stock and shell band cut-off has been achieved in many shell producing plants by Atkins engineers. By getting the *right saw* on the job and using that saw in the *right way*, cutting speeds have been greatly increased and subsequent machining operations reduced.

Basis of the new cutting speeds are Atkins Curled-Chip Saws. These modern metal cutting saws, as adapted to specific cutting jobs, permit stepped-up rates — rates nothing less than revolutionary when compared with the best of previous performance.

Call in an Atkins engineer to go over your shell cutting operations and show you exactly what can be done to save time and labor and reduce machine downtime on this vital work.

Write or Wire for Full Details

E. C. ATKINS AND COMPANY • INDIANAPOLIS, INDIANA

When writing E. C. Atkins and Company please mention Purchasing

F.O.B. filosofy of buying

THE Ordnance Department, whose contributions to the national wartime vocabulary have previously been noted in this column, has now trained its big guns on a popular term of the day and proposes a new and improved substitute, especially coined for the purpose. "Stop calling them *bottlenecks,*" says the latest communique to the production front. "They are *battlenecks.*" In support of the new phraseology, Ordnance continues: "*Bottleneck* is a passive peacetime word, meaning only a restricted flow of material. In war it means an increased flow of blood. In this all-out war, we need more fighting words and fighting deeds on the production front. *Battleneck* is a fighting word, and the man or woman who helps eliminate one is performing a fighting deed, because he is fighting for the lives of others."

• •

WHAT may go into the records as the all-time high among thoroughly irrational decisions of WPB in respect to the granting of priority ratings is the communication received by Arthur Richards of Larchmont, N. Y.:

"We regret that this application cannot be approved. The requirements for direct war production make it imperative to conserve critical material. *The construction described in your application should be deferred for the duration of the war.*"

Mr. Richards is Civilian Defense Director for his community. The application was for 97 feet of copper wire. The construction which WPB proposes to postpone until peacetime is the installation of two air raid sirens, already completed except for the aforesaid 97 feet of wire. Comments Rossiter Holbrook, Mr. Richards' deputy: "In other words, the WPB thinks that the people of Westchester County are expendable."

• •

PURCHASING Agents are tough, and they have need to be. A recent report from London, telling of a near casualty during an air raid there, has as its central character Captain Milton R. Maddux, popular member of the Cincinnati Association and widely known among P. A.'s for his service as N.A.P.A. Vice President for District No. 6 while he was purchasing officer for Ohio's Hamilton County. Capt. Maddux was running across a London street to aid rescue workers after the Nazis had bombed a row of houses. There was a belated explosion, and a bomb splinter struck Milt in the chest. It pierced his overcoat and blouse, but finally—we are very happy to report—was stopped by a wallet he carries in an inside pocket. "No harm done," he assured the United Press correspondent as he picked himself up and started to rejoin the rescue squad, "but I feel like some one had kicked me in the ribs."

• •

GRIPING about shortages? Then put yourself in the position of Major General Levin H. Campbell, Jr., Chief of Ordnance in the U. S. Army, whose procurement program probably represents the most urgent demand in history. General Campbell drives hard to get what he needs, and if it falls a little short of what he would like to have, he's no grumbler. For he has adopted a bit of philosophy from an ancient Arabian proverb which stands framed on his desk in the Pentagon Building at Arlington, and which is now being appropriately displayed in many of the Army's training centers. It reads:

"I had no shoes and complained —until I met a man who had no feet."

• •

A HIGH and unusual honor was added to the distinctions of one of purchasing's most popular practitioners at the recent Carnegie Day dinner of the Carnegie Institute of Technology, when Tom Jolly, Vice President, Director of Purchases, and Chief Engineer of the Aluminum Company of America, was acclaimed as Tech's "Man of the Year." F.O.B. joins with purchasing men throughout the country in sincere, even if somewhat belated, applause for the selection which does honor to Tech as

well as to Tom. A busy executive and capable buyer, who has taken the enormous wartime construction and expansion program of his company in stride, and has contributed some of the soundest practical thinking to the development of purchasing organization and policy, he has given liberally of his time and talent to the service of his profession. A democratic and able leader, past president of the Pittsburgh Association, three-time member of the national Executive Committee, and President of the N.A.P.A. in 1939-1940, whose characteristic modest comment on the company promotions that have come his way has been gratification that they still permit him to hold active membership in the purchasing group—to purchasing men Tom Jolly is not the man of any particular year, but one of their honored "Men of the Years."

• •

POST-WAR THOUGHT

Blessings on thee, little man,
Barefoot boy with cheek of tan,
Trudging down a well worn lane
With no thought of future pain.

You're the one and only bet
To absorb the national debt.
Little man with cares so few,
We've a lot of faith in you.

Guard each merry whistled tune,
You are apt to need it soon.
Have your fun now while you can—
You may be a barefoot man!

• •

MAYOR Ambler of Richmond, Va., looks back over the record of 1942 to appraise the accomplishments of his administration during an exceedingly critical year. There were a number of charter changes, annexation, a particularly difficult budget, and the organization of some 50,000 citizens into an effective Civilian Defense unit. But after mature deliberation, Hizzoner places right up at the head of the list—the fulfillment of his campaign pledge to establish a Centralized Purchasing Department for his city.

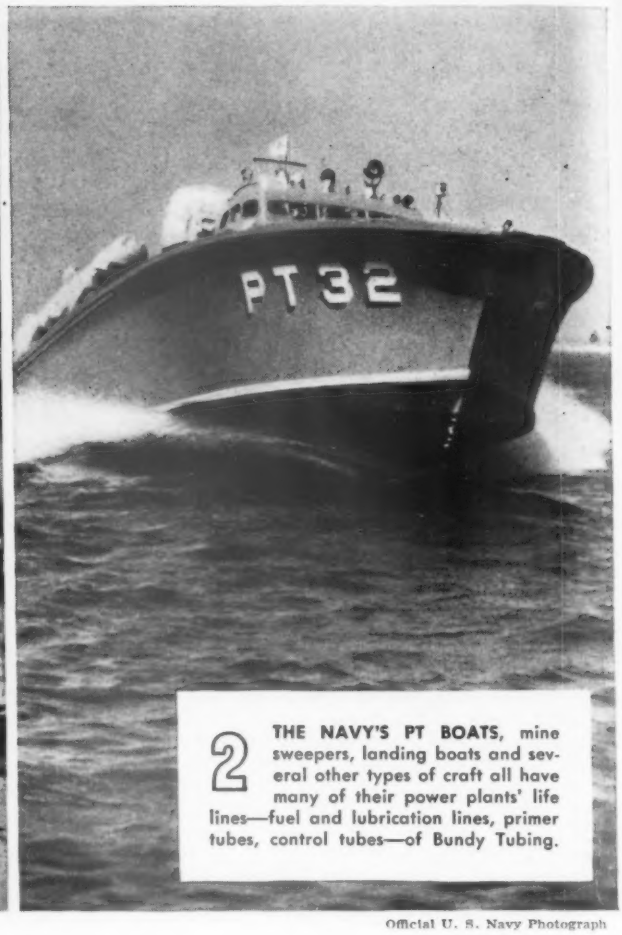
• •

THE report of an unusual purchase comes from Schenectady, N. Y., where the City P.A. procured added efficiency and salvaged about 50% of lost time among municipal employees at a cost of $1 each per year. The $800 purchase provided one vitamin pill per day per worker throughout the fall and winter. City-wide adoption of the plan followed a thoroughly documented three-year test.

FAMOUS LIFE LINES

1 SOUTH PACIFIC ISLANDS, links in our life line of communications with Australia and New Zealand, are scenes of strenuous activity today. Here the soldiers of a U. S. anti-aircraft battery jockey their gun into place.

Official U. S. Navy Photograph



2 THE NAVY'S PT BOATS, mine sweepers, landing boats and several other types of craft all have many of their power plants' life lines—fuel and lubrication lines, primer tubes, control tubes—of Bundy Tubing.

Official U. S. Navy Photograph

THE DAY of men *against* machines is gone. This is a war of men AND machines, working together for Victory. Dependable, ace-high fighting equipment is a "must" on the battlefronts of World War II. The men in the Armed Forces depend for their lives and fighting efficiency on weapons that can stand the gaff

Life lines of Bundy Tubing fill a vital war role in feeding oil and gas to jeeps, tank destroyers, weapon carriers, PT boats; in carrying refrigerants for chilling 1000 and cooling ammunition and powder rooms; in transmitting hydraulic pressure for tanks and all types of motor vehicles; in providing structural or mechanical tubing for aircraft, gliders, "walkie-talkies," field radios, artillery.

We at Bundy will do our part in seeing that every tank, every warplane, every piece of fighting equipment gets the finest, most dependable tubing Bundy can produce. Bundy Tubing Company, Detroit, Michigan.

Photo by U. S. Army Signal Corps

THE ARMY'S "PEEP," like practically every motorized vehicle used by the armed forces, has many of its "life lines" of Bundy Tubing. More than forty types of American-made military vehicles, with an average of twenty or more Bundy Tubing parts, are standing up under gruelling punishment all over the world.

Buy U. S. War Bonds
Get In Your Scrap

BUNDY TUBING

ENGINEERED TO YOUR EXPECTATIONS

BUNDYWELD double-walled steel tubing, hydrogen-brazed, copper-coated inside and outside. From Capillary sizes up to and including $\frac{1}{16}$" O. D. This double-walled type is also available in steel, tin-coated on the outside, and in Monel.

BUNDY ELECTRICWELD steel tubing. Single-walled — butt welded — annealed. Available in sizes up to and including 2" O. D. Can be furnished tin-coated outside in smaller sizes.

BUNDY "TRIPLE-PURPOSE" tubing. Double-walled, rolled from two strips, joints opposite, welded into a solid wall. Available in all Monel; all steel; Monel inside—steel outside; Monel outside—steel inside. Sizes up to and including $\frac{5}{16}$" O. D.

When writing Bundy Tubing Company please mention Purchasing

ROEBLING "Blue Center" helps them set the pace!

They start with a cow pasture and in a few hours have it ready for fighter planes taking off to battle . . . with the aid of "swiss cheese" steel strips woven into an all-weather emergency landing field! That's the kind of problem the Corps of Engineers thrive on.

We know, because "Blue Center" goes along on so many of their assignments . . . from tractor cranes to mobile cableways, from river dredges to motorized winches. And whether it's lifting the face of Mother Earth for the Army or passing the ammunition for war plants, you'll find Roebling "Blue Center" Steel Wire Rope on the job wherever the going is tough.

Roebling is learning every day the ways to make "Blue Center" better than ever before. Roebling development engineering, facilities and experience give it the extra stamina to meet unusual as well as routine jobs . . . to give extra service wherever extra service is called for . . . toward Victory.

It's your wartime duty to use wire ropes EFFICIENTLY!

Whatever your big job is, you've got a small but important job to see that wire rope is properly cared for on your *equipment.* To help you, Roebling has assembled a wealth of conservation data on convenient tags that operating men can fasten right on to reels and equipment. It's a simple, handy way to remind and instruct them about such vital precautions as:

1—PROPER INSTALLATION
2—CORRECT SPOOLING
3—PROPER USE OF CLIPS
4—REGULAR LUBRICATION
5—FREQUENT INSPECTION
6—CAREFUL OPERATION

Our nearest office will gladly furnish as many copies of this tag as you need. Ask for Tag "A".

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY *Branches and Warehouses in Principal Cities*

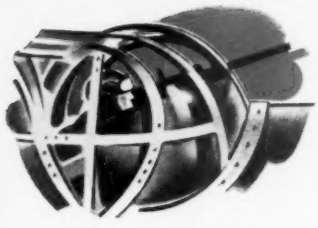
When writing John A. Roebling's Sons Company please mention Purchasing

SERVING THE ARMED FORCES

"... This award is your nation's tribute to your patriotism and to your great work in backing up our soldiers on the fighting front."

Under Secretary of War

EMERSON-ELECTRIC War Products

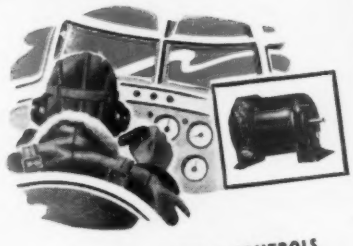


POWER-OPERATED AIRPLANE GUN TURRETS

These heavy-caliber fire power, armored turrets protect our Army-Navy Bombers and Torpedo planes against enemy fighter aircraft.

PARTS FOR ARTILLERY AMMUNITION

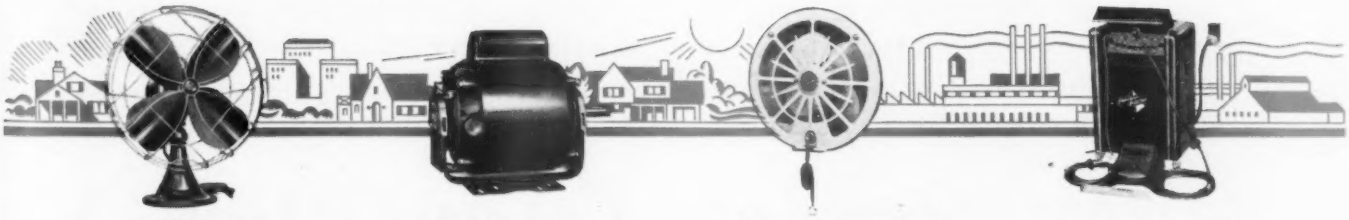
Precision-built shell bodies and boosters for U. S. Artillery are contributing to the offensive power of our armed forces.



ELECTRIC-MOTOR CONTROLS FOR AIRCRAFT

The fighting power and split-second maneuvering of modern war planes depend upon precision-built electric motor controls.

AFTER VICTORY...Back To The Job Of Serving The Nation



ELECTRIC FANS

The most complete selection of quality Fans in America, with the famous 5-Year Guarantee, inaugurated in 1914.

ELECTRIC MOTORS

For household, farm, commercial and industrial appliances and labor saving machines. . . . Also, for aircraft controls.

VENTILATING EQUIPMENT

Kitchen ventilating and attic cooler fans for homes. Exhaust and ventilating fans for industry and commerce.

A. C. ARC WELDERS

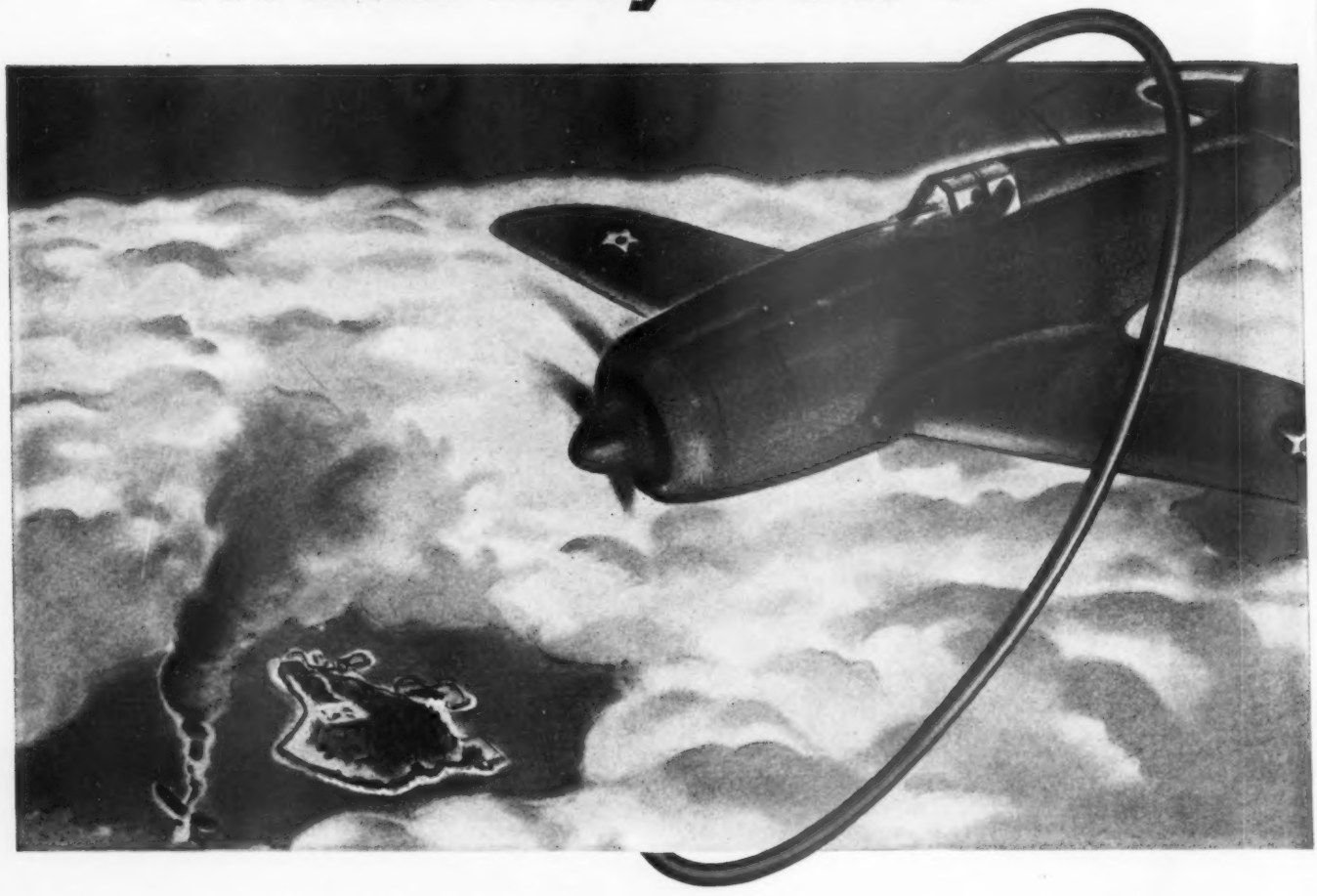
The most modern of metal fabricating methods is made universally available through these compact, portable units.

EMERSON ELECTRIC

THE EMERSON ELECTRIC MANUFACTURING COMPANY, SAINT LOUIS... Branches: New York • Detroit • Chicago • Los Angeles • Davenport

When writing The Emerson Electric Manufacturing Company please mention Purchasing

Fail? – They can't fail ...and they DON'T



THIS little synthetic rubber ring had a lot to do with that dead Zero up there. And with a lot of other dead Zeros, too.

It's an Oil Seal Ring, made by Acushnet, (we're proud to say) from synthetic rubber compounds for Pratt & Whitney and Pratt & Whitney licensees. On it depends the perfect functioning of an airplane motor. On it may depend victory or defeat, life or death. It *can't* fail . . . and our job is to see that it *doesn't.*

This ring has to stand hot oil at 300° F. for 168 hours! It has to swell between 15% and 40% after its oil-bath. It has to flex 180° without showing a surface crack.

Such tests are not easy to meet — particularly when new processes and new substances are involved in the manufacture of the product. That we have been able to meet them in a satisfactory manner is the basis for our pledge to strive for perfection in the production of all molded rubber goods bearing the Acushnet name.

ACUSHNET

PROCESS COMPANY

New Bedford • Massachusetts

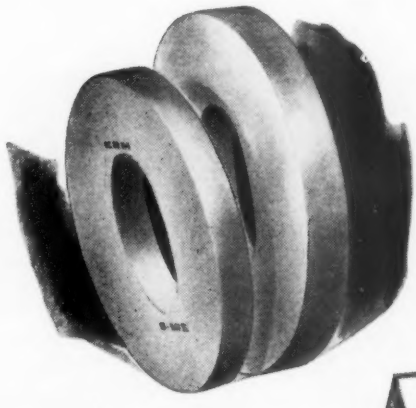
MAKERS OF PRECISION-MOLDED RUBBER GOODS

When writing Acushnet Process please mention Purchasing

What's the hottest spot in a Dog Fight ?

A pilot may keep cool in a "dog fight"—but not his engine! And to function smoothly at high engine temperatures all moving parts must be ground and finished with split hair precision. And that's where Carborundum comes in. For instance, the valve stems are ground to the required accuracy by a centerless grinding process which Carborundum helped develop.

The centerless grinder grinds the valve stems to an accuracy of five ten-thousandths of an inch. Does it, too, in half the time other finishing methods would require. Carborundum has led in the development of centerless grinding wheels to speed the output of valves, pistons, shafts and other such parts that go into a plane.

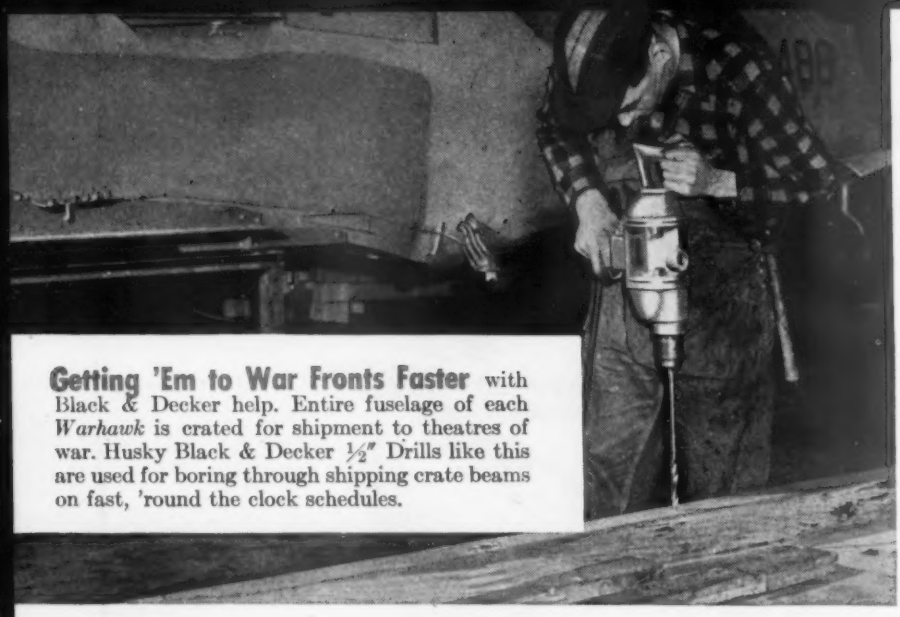


Because of the vital part grinding plays in war production, correct care and use of grinding equipment is a wartime must. Every grinding wheel is a "Weapon for Production" and should be properly used for maximum effectiveness. The Carborundum Company, Niagara Falls, New York.

CARBORUNDUM
REG. U.S. PAT. OFF.
ABRASIVE PRODUCTS

Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company.

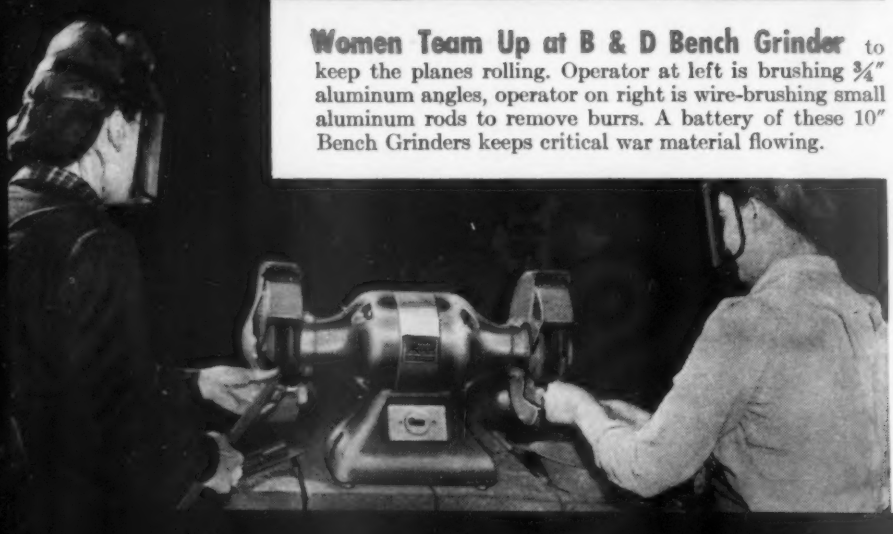
When writing The Carborundum Company please mention Purchasing



Getting 'Em to War Fronts Faster with Black & Decker help. Entire fuselage of each *Warhawk* is crated for shipment to theatres of war. Husky Black & Decker ½" Drills like this are used for boring through shipping crate beams on fast, 'round the clock schedules.

Using ¼" Drill in Special Radial Arm for accurate drilling of bulkhead assembly part with template. After completing this operation, the operator uses the Holguns (shown on rack) for drilling many other holes manually.

Hundreds of Holes in Huge Commando Noses are drilled in record time with humming Black & Decker Holguns. Because all of the pilot's controls are housed in these massive nose sections, scores and scores of holes must be drilled for the installation of vital control and instrument panels in each of the cargo transport ships.



Women Team Up at B & D Bench Grinder to keep the planes rolling. Operator at left is brushing ¾" aluminum angles, operator on right is wire-brushing small aluminum rods to remove burrs. A battery of these 10" Bench Grinders keeps critical war material flowing.

Holgun at Work on Wing Fillets on the final assembly line for *Warhawks*. After this drilling operation, each Curtiss-Wright fighter plane is ready for final inspection and actual flying tests.

Speeding Deadly "Warhawks" into the Air

Hurrying Giant "Commandos" to take 'em There!

CURTISS-WRIGHT'S newest and deadliest *Warhawk* fighter planes and their giant new *Commando* cargo transports are filling the air over the world's fighting fronts faster than ever before. Playing no small part in this record production are thousands of husky Black & Decker Electric Tools, humming night and day at the Curtiss-Wright plants, helping speed the output of these vitally needed planes.

The pictures here show how Black & Decker Tools are doing many important production jobs—jobs that are done again and again throughout the entire aircraft industry today. They show why aircraft plant production experts say, "You can do the job FASTER and BETTER with Black & Decker Tools."

This story is another example of the American system of free enterprise at work . . . of close and voluntary cooperation between aircraft builder and electric tool manufacturer . . . of free men uniting their efforts, experience and ingenuity in the common cause of producing more and better weapons to help win this fight for freedom.

Need Expert Help? *Your nearby Black & Decker Distributor can give you expert help on tooling problems. He's dependable, convenient, as a source of supply or tool information. The Black & Decker Mfg. Co., 764 Pennsylvania Ave., Towson, Maryland.*

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC **TOOLS**

Speed Victory! Get in the Scrap with your Scrap!

From Nose to Tail-Wheel of giant *Commandos*, thousands of holes need to be drilled on fastest schedules possible. Here operator is drilling with Holgun to install a tail-wheel mud guard on one of the huge "flying boxcars."

Wing Panel Tapping Goes Faster with this Black & Decker Tapgun. The operator has attached an accessory to Tapgun which automatically assures uniform depth of tapping. Tapguns save time, labor on many vital operations.

Curtiss-Wright Production Lines are Alive with the aircraft industry's most used electric drill . . . Black & Decker's famous "Handful of Power" Holgun. Hundreds of them are used to drill wing sections (shown here) of deadly *Warhawks*.

BEARINGS OR BULLETS

Today, more than ever before, man-hours are the dominating factor whether in the manufacture of bearings or bullets. Therefore, by making bearings last longer more man-hours can be applied to production of bullets—and that's important these days.

BALL BEARING LUBRIPLATE will, by virtue of its outstanding lubrication and protection features, make your ball and roller bearings last longer. LUBRIPLATE is different from any lubricant you ever used. It possesses characteristics not to be found in ordinary lubricants.

Just think what it would mean to you if you could double or treble the life of your anti-friction bearings—reduce replacement bearing and labor costs—avoid unnecessary production interruptions. That is exactly what scores of manufacturers are accomplishing with BALL BEARING LUBRIPLATE.

Your investment in ball and roller bearings is certainly great enough to warrant your investigation of BALL BEARING LUBRIPLATE. Write today for your free copy of "THE LUBRIPLATE FILM" No. 1-43 containing valuable information on the lubrication and care of ball and roller bearings.

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
NEWARK, N. J. **SINCE 1870** TOLEDO, O.
WRITE FOR THE NAME OF THE DEALER NEAR YOU.

When writing Fiske Brothers Refining Company please mention Purchasing

A LETTER TO THE SECRETARY OF WAR

Incorporated 1850

Pennsylvania Salt Manufacturing Co.,
Manufacturing Chemists.
Widener Building
Philadelphia

Leonard T. Beale
President

February 13, 1943

The Honorable Henry L. Stimson,
Secretary of War,
War Department,
Washington, D. C.

My dear Mr. Secretary:

You are faced today with responsibilities that are far greater than those which have ever before confronted a Secretary of War. Our armies are fighting in a worldwide struggle and you must plan in terms of global war.

While most Americans realize what that means in general terms of troop movements and supply lines, we believe that few people have any conception of the multitude of other important problems you must solve.

For example, the proper sanitation of water supply and sewage in army camps at home and abroad is vitally important in protecting the health of our armed forces. We are glad to say that this is a problem in which we are able to provide direct and effective aid.

For many months past we have been supplying the army with large quantities of Perchloron, an unusually stable chlorine compound, used in the purification of drinking water and for other measures of safeguarding health.

While this is only a comparatively minor contribution to the success of a great plan, we are proud to make it -- and to cooperate in this way in the solution of one of your problems.

Yours for Victory,

Leonard T. Beale

PENN SALT
Chemicals

BLAW-KNOX *Electroforged* GRATING

SAFE: twisted bar does the trick STRONG: one piece electroforged CLEAN: no sharp angles to clo

EASY TO PAINT · OPEN FOR LIGHT AND AIR

Whatever your grating needs—here's how to select the proper size.

WHAT TO SPECIFY WHEN ORDERING BLAW-KNOX ELECTROFORGED GRATING

- ★ Size of bars and type.
- ★ Painted or galvanized.
- ★ Dimensions of area to be covered.
- ★ Direction bearing bars are to run.
- ★ Is clearance to be allowed.

BLAW-KNOX ELECTROFORGED STAIR TREADS

These treads are designed for the development of unusual strength against impact. Standard sizes and specifications follow:

Abrasive	Diamond Plate	TYPE "J" — 1" x 1/4" BARS		
Width	Width	Min. Length	Suggested Max. Length	A
6 3/4"	6 1/4"	1'6"	3'0"	2 1/2"
7 11/16"	7 1/4"	1'6"	3'0"	4 1/2"
9 1/8"	8 1/4"	1'6"	3'6"	4 1/2"
10 1/4"	9 1/8"	1'6"	3'6"	7"
11 1/2"	10 11/16"	1'6"	3'6"	7"

Abrasive	Diamond Plate	TYPE "L" — 1 1/4" x 1/4" BARS		
Width	Width	Min. Length	Suggested Max. Length	A
7 11/16"	7 1/4"	2'0"	4'0"	4 1/2"
9 1/8"	8 1/4"	2'0"	4'0"	4 1/2"
10 1/4"	9 1/8"	2'0"	4'0"	7"
11 1/2"	10 11/16"	2'0"	4'6"	7"
12 11/16"	12"	2'0"	4'6"	7"

BLAW-KNOX DIVISION
OF BLAW-KNOX CO.
2075 FARMERS BANK BUILDING PITTSBURGH, PA.

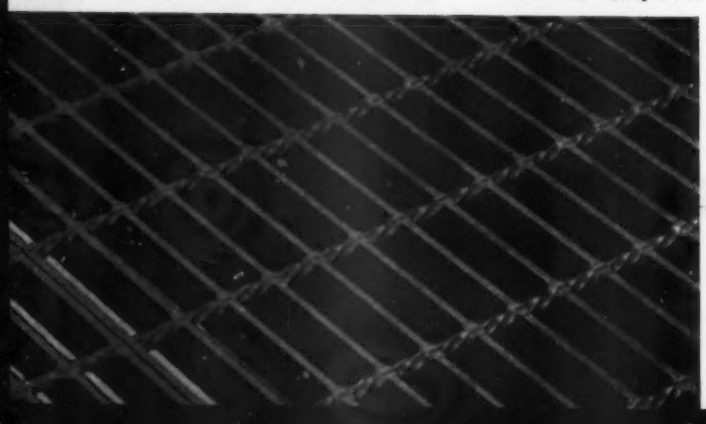


TABLE OF SAFE LOADS BLAW-KNOX ELECTROFORGED GRATI

C — Safe concentrated load in pounds per foot of width

U — Safe uniform load in pounds per foot of width

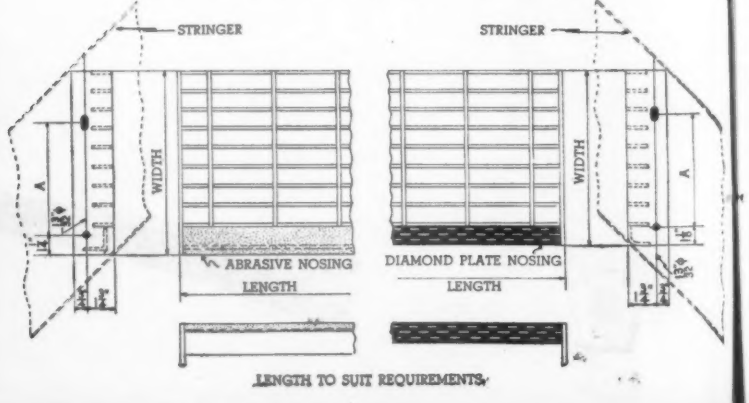
D — Deflection in inches

SIZE OF BEARING BARS 1 IN. APART

Span, ft.-in.		2-0	2-6	3-0	3-6	4-0	4-6	5-0	5-6	6-0	6-6	7-0	8-0	9-
3/4x3/16	U	330	222	143										
	D	.085	.134	.192										
	C	330	265	215										
	D	.068	.108	.154										
3/4x3/16	U	500	320	217										
	D	.085	.134	.192										
	C	500	400	325										
	D	.068	.108	.154										
1x1/8	U	600	384	267	188	150								
	D	.064	.099	.143	.195	.256								
	C	600	480	400	330	300								
	D	.051	.080	.115	.156	.205								
1x1/8	U	900	580	400	286	225								
	D	.064	.099	.143	.195	.256								
	C	900	725	600	500	450								
	D	.051	.080	.115	.156	.205								
1 1/4x3/16	U	950	600	420	303	232	184	146	120					
	D	.051	.081	.115	.157	.205	.259	.321	.389					
	C	950	750	630	530	465	415	365	330					
	D	.041	.064	.092	.125	.163	.207	.256	.310					
1 1/4x1/8	U	1425	900	633	457	350	278	220	182					
	D	.051	.081	.115	.157	.205	.259	.321	.389					
	C	1425	1125	950	800	700	625	550	500					
	D	.041	.064	.092	.125	.163	.207	.256	.310					
1 1/2x3/16	U	1365	880	610	445	340	266	220	182	150	128	110		
	D	.043	.067	.094	.131	.166	.216	.267	.324	.385	.440	.522		
	C	1365	1100	915	785	680	600	550	500	450	415	385		
	D	.034	.053	.077	.104	.137	.173	.214	.259	.308	.361	.418		
1 1/2x1/8	U	2050	1320	917	672	512	400	330	273	225	192	164		
	D	.043	.067	.094	.131	.166	.216	.267	.324	.385	.440	.522		
	C	2050	1650	1375	1175	1025	900	825	750	675	625	575		
	D	.034	.053	.077	.104	.137	.173	.214	.259	.308	.361	.418		
1 3/4x3/16	U	2800	1780	1230	915	700	544	440	364	308	262	228	175	13
	D	.038	.057	.082	.112	.147	.185	.229	.276	.330	.387	.450	.580	.73
	C	2800	2225	1860	1600	1400	1225	1100	1000	925	850	800	700	60
	D	.029	.046	.066	.090	.117	.148	.183	.221	.264	.308	.358	.468	.59
2x3/16	U	3650	2340	1618	1200	912	723	580	482	400	346	293	225	17
	D	.032	.050	.072	.099	.128	.163	.201	.243	.289	.341	.397	.516	.65
	C	3650	2925	2425	2100	1825	1625	1450	1325	1200	1125	1025	900	80
	D	.026	.040	.057	.078	.102	.129	.160	.193	.230	.269	.314	.409	.51
2 1/4x3/16	U	4650	2960	2065	1515	1150	912	740	608	516	438	379	288	22
	D	.027	.044	.064	.087	.113	.148	.177	.214	.255	.305	.349	.455	.57
	C	4650	3700	3100	2650	2300	2050	1850	1675	1550	1425	1325	1150	102
	D	.023	.035	.051	.070	.091	.115	.142	.172	.204	.240	.279	.364	.46

Spans to right of heavy line not recommended

Maximum allowable fiber stress 16,000 lbs. per sq. in.



Looking ahead with Asbestos

Hard-boiled sentries, K&M asbestos packings are on guard now, and will be in the future, at valves and fittings, to see that precious steam, gas, acid, water, oil—as the case may be—does not escape. On guard, in fact, to plug many leaks that can add up to inexcusable and costly waste.

K&M Packings are so effective at sealing a machine—and keeping it so—that for some time the war effort has been taking all that Keasbey & Mattison can make.

Though the war is giving new impetus to industrial design, it is impossible to imagine change so revolutionary as to by-pass these asbestos-based packings that have served Industry efficiently for many years. No, when peace returns K&M Packings will resume their "plugging" for civilian industry, full-time.

In the meantime, K&M research continues to expand the usefulness of asbestos, and invites you to suggest ways in which Nature's strangest mineral might better serve you.

* * *

Nature made asbestos;
Keasbey & Mattison, America's asbestos pioneer, has made it serve mankind . . . since 1873

KEASBEY & MATTISON
COMPANY, AMBLER, PENNSYLVANIA

Makers of

asbestos-cement shingles and wallboards; asbestos and magnesia insulations for pipes, boilers, furnaces; asbestos textiles; asbestos electrical materials; asbestos paper and millboard; asbestos marine insulations; asbestos acoustical material; asbestos packings; asbestos corrugated sheathing and flat lumbers; asbestos-cement pipe for water mains

When writing Keasbey & Mattison Company please mention Purchasing

VIA ALASKA HIGHWAY

Our Northern front is now not only protected, but is set up for attack. In this triumph of American and Canadian ability to do what couldn't be done, both men and equipment did their work well. Credit must also be given the manufacturers who delivered *on time* the trucks, tractors, shovels, bulldozers and other rugged construction equipments which stood up so well in service that was the ultimate in severity.

Kropp Forge is proud of having furnished many tough stress and shock-resisting forged parts for the many equipments used in building the Alaska Highway; also of the fact that we made our deliveries *on time* to aid the builders of these massive construction machines.

Wherever dependable forgings are needed for the war effort, the greatly increased facilities of Kropp Forge are equal to the task of delivering forged machine and equipment parts *on time*.

SERVING INDUSTRY SINCE 18 31 OVER 100 YEARS

KROPP FORGE CO.

Proudly we fly the Army and Navy "E" flag and stars, awarded and re-awarded for excellence and proficiency in the production of war materiel.

KROPP FORGE COMPANY

Makers of Drop, Upset and Hammer Forgings for Ships, Guns, Planes, Tanks, Ordnance and Machine Tools.

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He's carrying more loads, bigger loads . . . and carrying them farther. Doing a wonderful job, too, in spite of all handicaps.

You can help him. Not necessarily because you're philanthropic, but because it's to your own interests to lend a hand. It's only good business to help your railroad shipments go through undamaged . . . to prevent waste of materials, manpower, machinery, time and shipping facilities.

You can help tremendously merely by using better corrugated shipping boxes . . . boxes that are sturdier, stronger, better engineered to stand up under longer hauls, heavier loads, and handling by inexperienced men.

The few extra pennies in original cost will soon be dwarfed by month after month savings. You can prove that to your own satisfaction by writing the H & D Package Laboratory. Learn what has been done for others, what can be done for you.

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INSTRUCTIVE BOOKS

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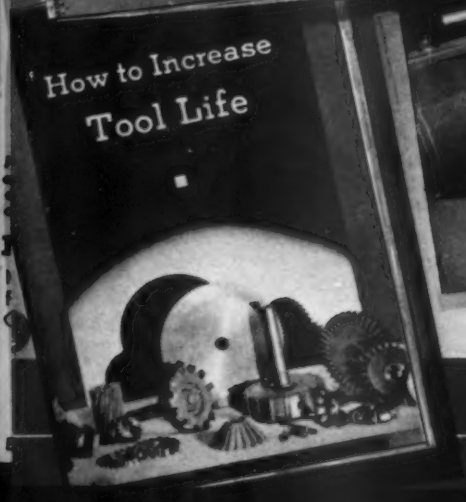


1. HOW TO INCREASE TOOL LIFE. Deals with refined surface finishes as applied to regrinding of metal cutting tools. Here is important information for the tool room since it is imperative today that there be increases in tool life and work quality. Photomicrographs of cutting tools show the superiority of edge obtained by finishing with finer grit wheels. 24pp.

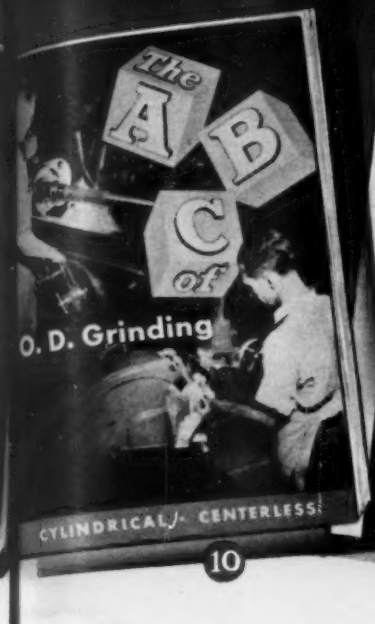
2. GRINDING "HAYNES STELLITE" CUTTING TOOLS. To obtain the best results possible from the use of "Haynes Stellite" J-Metal and "2400" tools, it is essential that they be sharpened correctly, that is to say, with highly finished cutting edges, with correct clearance angles and without heat checks. This book tells you how. 32pp.

3. GRINDING CARBIDE TIPPED TOOLS. A 64-page book which gives full information on the correct selection and use of metal bonded diamond wheels, resinoid bonded diamond wheels and Crystolon vitrified wheels for grinding all types of cemented carbide tools.

4. NORTON CUT-OFF WHEELS. This book furnishes an interesting comparison between the abrasive wheel and the metal saw, gives the limitations of uses of cut-off wheels, a general summary of advantages you can obtain by the use of this comparatively new abrasive product. Every mechanic owes it to himself to look into the possibilities of cut-off wheels, and this book will supply him with the information he needs. 28pp.

5. THREAD GRINDING. A handbook which discusses some of the common difficulties encountered in thread grinding and tells how they may be overcome. There are several pages of helpful graphs and tables.

S.. to help you get MORE PRODUCTION



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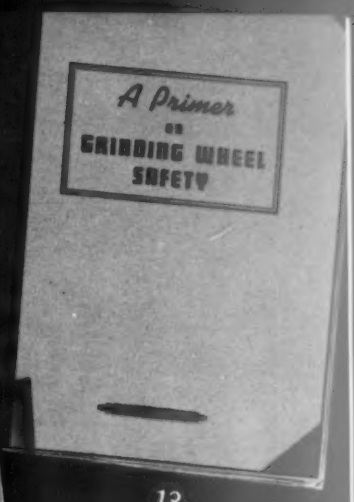

13

14

6. ABRASIVES AND GRINDING WHEELS. Defines in an understandable way the two major types of grinding, the three physical characteristics of every grinding wheel, the two artificial abrasives used in the production of Norton wheels, the five general types of bonds; a guide to selection of abrasives, grain size, strength of bond, structure, and grinding wheel markings. 82 pp.

7. A HANDBOOK ON TOOL ROOM GRINDING. This handbook receives a ready welcome in tool rooms everywhere. It is a guide for the tool room operator or apprentice prepared by Norton engineers in co-operation with several tool and grinding machine manufacturers. It contains a wealth of information of great importance in these times when every tool room must operate at the highest point of efficiency possible. 177 pp.

8. NORTON GRINDING WHEELS FOR THE TOOL ROOM. A condensed summary of some of the most popular sizes and shapes of wheels in the grains and grades commonly used for tool grinding. 9 pp.

9. TRUING AND DRESSING. Every successful operator must know how to use truing and dressing tools. Standard methods, based on a few easily understood rules are defined in this booklet, adequately illustrated. It contains illustrated answers to essential questions, as well as guidance to precautions that must be observed in using truing tools. 20pp.

10. THE A B C OF O. D. GRINDING. "O. D." is the common shop expression for the outside diameter of a cylindrically shaped piece or part. This booklet covers the principal elements of cylindrical and centerless grinding, including information on both types of machines and their operation. There is a complete chapter each on the selection of wheels for cylindrical and centerless grinding. 40pp.

11. FACTS ABOUT METAL POLISHING — A booklet that contains 39 pages of helpful information on the selection and use of abrasive grain for polishing. Typical chapter subjects are "Preparation of Glue", "Types of Polishing Wheels", "Setting Up Polishing Wheels", "Setting Up Abrasive Belts", "Correct Drying", "Factors of Efficient Polishing".

12. NORTON ABRASIVES FOR PORTABLE GRINDERS. The many and varied uses of portable grinders — in the foundry, the steel mill, fabricating shop, die shop and the stone industry — are described in this book and the recommended wheel specifications for each job are given. 28pp.

13. A PRIMER ON GRINDING WHEEL SAFETY. Answers many questions which have suggested themselves to grinding wheel operators, such as "What causes grinding wheel accidents?" "What can I do to prevent such accidents?" "What does a grinding machine operator have to know about wheel mounting?" "What speeds are considered safe for various kinds of steel?" 24pp.

14. DISC GRINDING, A PRODUCTION OPERATION — The many advantages of disc wheels for surfacing operations are described and the many types of discs are listed — solid and segmental styles; resinoid, rubber, shellac, vitrified and silicate bonds; inserted nut, projecting screw and loose screw mountings. 28pp.

NORTON COMPANY
WORCESTER, MASS.

I can use the books checked below:

1. How to Increase Tool Life
2. Grinding "Haynes Stellite" Cutting Tools
3. Grinding Carbide Tipped Tools
4. Norton Cut-Off Wheels
5. Thread Grinding
6. Abrasives and Grinding Wheels
7. A Handbook on Tool Room Grinding
8. Norton Grinding Wheels for the Tool Room
9. Truing and Dressing
10. The A B C of O. D. Grinding
11. Facts About Metal Polishing
12. Norton Abrasives for Portable Grinders
13. A Primer on Grinding Wheel Safety
14. Disc Grinding — A Production Operation

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NORTON ABRASIVES

The Old Alchemist really had something

. . . but he didn't know what it was

2000 HEN'S EGGS in one batch were nothing for him to boil, peel, and fire-harden in his one-man gold rush. He'd try a load of iron and vinegar, lead and mercury. Now and again he even hit on copper and calamine . . . but the golden sheen of the metal couldn't fool *him*. No magic Philosopher's Stone had touched it, so he thought it worthless.

Yet what he held in his hand then . . . good, workable, durable brass . . . has come to carry more weight than gold today, in the hands of the United Nations gunners who can't get too much of it, too soon. For brass cartridges and shells, torpedoes and bombs are a weighty part of the "foreign exchange" that is going to buy us Victory. To this end, the golden-yellow metal is pouring in a rising flood from the furnaces at Bristol. Every inch of sheet, rod, and wire shipped out of this plant has for its ultimate destination . . . *the enemy*. And when that end is reached, brass from Bristol will return from war to fill again the peacetime places that only brass *can* fill with complete efficiency, and with complete satisfaction to its users.

THE **BRISTOL BRASS** *CORPORATION*

MAKERS OF BRASS SINCE 1850 · BRISTOL, CONNECTICUT

George*, we'd like to shake your hand

YOU'RE such a matter-of-fact fellow, George, that maybe it never occurred to you that you've done anything out of the ordinary since that fateful Sunday when America found itself at war.

Sure—you've just done your job as you saw it. But listen, George. Planning and engineering our war effort—keeping the wheels turning and supplies and materials moving — figuring out the million minor details . . . that took brains of a special sort. The vast load of paper work that had to be done before a single machine could function, before a single bomber could lay its eggs, didn't just do itself. You did it.

When bad news came over the wires, you set your jaw and worked just that much harder. And when the news was good, you took it with a quiet smile and kept right on plugging away. No, George, not all the heroes in this war are making the headlines.

The late hours you spent at your desk when the others had left . . . the way you've planned and sweated to meet one emergency after another . . . the extra work you've taken on your patient shoulders when younger men were called away for more spectacular, more exciting duties, wasn't exactly a snap, either.

Maybe you don't wear a uniform, George, but remember this. You're on the all-important staff of the home-front army. If it weren't for you, and the thousands of Georges like you, our job of war production would be in an awful mess right now.

Who is George?** **Surely you know dozens of Georges. He stands beside you on a crowded bus early in the morning. You've watched him coming wearily home from work long after the rest of the neighbors have finished supper. He may even be the fellow who makes those funny faces at you as you shave before your mirror in the morning. More power to you!

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh and Chicago

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Export Company, New York

USS

UNITED STATES STEEL

A Problem in Electroplating and How It Was Solved

The Problem

An Eastern plating company had a contract for anodizing aluminum parts. The contract would be completed in about 9 months. The job would require a power supply of 500 amperes, 40 volts.

When, if ever, there would be another job requiring 40-volt equipment was uncertain. Most likely the next job would be low-voltage plating requiring 6 volts. The problem was: What equipment would serve both these widely different requirements.

The Solution

Here's how the needed flexibility was obtained: Seven standard 500 ampere, 6-volt G-E Copper Oxide Rectifiers were purchased. By a series connection and regulator control, this equipment was adapted to operate over a range from 1 to 40 volts at 500 amperes. When the contract was completed, the same equipment was relocated at two different points in such a way that 4 units were used for a plating job requiring 12 volts, 1000 amperes, while the other 3 units were set up on a job requiring 6 volts, 1500 amperes.

This illustrates only one of the many electroplating power supply problems that can be solved through flexible G-E Copper Oxide Rectifiers. Whatever your problem, General Electric Metallic Rectifier Engineers will be glad to consult with you. For additional information, write to Section A333-77 Appliance and Merchandise Dept., General Electric Co., Bridgeport, Conn.

GENERAL ELECTRIC

When writing General Electric Company please mention Purchasing

Although it is widely acknowledged that **HAZARD LAY-SET PREFORMED WIRE ROPE** is easier on sheaves than non-preformed rope, even **LAY-SET** will last still longer and give better service if it operates over the proper size sheave of the correct material.

A sheave that is too small imposes a severe fatiguing effect on the rope, which produces premature fracturing of its wires.

Sheave treads, sheave bearings, and fleet angles should all be watched to protect both rope and sheave life. Wherever possible, sheave diameters should not be less than the values given below:—

for 6x 7 construction	42 times diam. of rope
for 6x19 Seale construction	34 times diam. of rope
for 6x16 Filler Wire construction for 6x19 Warrington construction for Flattened Strand	30 times diam. of rope
for 6x19 Filler Wire for 8x19 Seale construction	26 times diam. of rope
for 6x22 Filler Wire	23 times diam. of rope
for 8x19 Warrington for 8x19 Filler Wire	21 times diam. of rope
for 6x37 Seale for 6x41	18 times diam. of rope

Ask your nearest **HAZARD** man to help you get longer life and better service from your ropes and rope equipment. All **HAZARD** ropes made of Improved Plow Steel are identified by the Green Strand.

HAZARD WIRE ROPE DIVISION

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Fort Worth, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Tacoma

AMERICAN CHAIN & CABLE COMPANY, INC.

BRIDGEPORT, CONNECTICUT

GREEN SIGNIFIES SAFETY

HAZARD LAY·SET WIRE ROPE

When writing Hazard Wire Rope Division please mention Purchasing

One Way to Save Steel i

. . . AND THIS IS ONE W

The Lamson & Sessions Company uses both methods of manufacture mentioned in this advertisement—as required by the individual specifications of the customer.

el is to produce less scrap

NE WAY YOU CAN DO IT

This is an actual, practical, everyday example of how cold forging (upsetting) conserves raw materials and reduces scrap.

We realize that the difference in scrap produced in just this one common bolt product shows up in a startling way to you. However, you can be sure that this is not "trick" photography or in any sense a fake or exaggeration, for here are the facts relating to this photograph. The example shown at left is a ¾ x 6" S. A. E. hexagon head cap screw.

Weight of Finished Bolt per 1000 pieces, 849 lbs.	Milled from the Bar	Made by Cold Forging
Raw Material Required	1639 lbs.	880 lbs.
Total Scrap Loss	759 lbs.	31 lbs.
Amount of raw material saved per 1000 pieces by upsetting method		728 lbs.

In short, excepting for the bit of metal trimmed off the head of the cap screw made by the upsetting method, *there is no scrap produced.* Since the weight of 1000 pieces of these head trimmings is only *31 lbs.,* the scrap loss that is measurable in production is less than *.031 lbs.* per bolt!

And obviously, the scrap loss in producing this same bolt by milling from the bar is 0.759 lb. per piece, *or about 25 times as much!*

That is why we can say that if a part that is made on a screw machine can be produced by the upsetting method you will save raw materials. Since heading and threading today is done to very close tolerances and with a minimum of scrap, it is extremely important to remember this when every pound of steel is "ear-marked" for a purpose—*to win the war.*

But that is not the only reason why, in war production, you should consider upsetting as a method opposed to a milled-from-the-bar product. Here are two more excellent reasons.

1. If a part now made on a screw machine can be made by upsetting, you can release a machine tool badly needed to make another part which can only be made by a screw machine!
2. Upsetting and threading a part, compared with producing the same part on a screw machine, is generally many times faster, and in every way as satisfactory or more satisfactory as the milled product.

There are still other good reasons why upsetting may solve a problem for you—and of course the relative importance of each reason we present will vary with your position in war production.

3. You can specify upset products with a reasonable expectation of getting better deliveries, without sacrificing standards of accuracy, strength or finish. (Please refer to the photograph. Upsetting uses *round* wire for the part, which is more readily available, and less expensive, than *cold hexagon drawn* bar stock used by the milling process.)
4. Accuracy and finish? The aviation industry is now using products made by the upsetting method, which meet every laboratory test and the most exacting inspections.
5. Lamson & Sessions make cap screws with a minimum tensile strength of 150,000 lbs. psi in diameters up to and including ½-inch; up to 125,000 lbs. psi in diameters over that! *A smaller bolt made by modern bolt practise will often* PROVIDE ALL THE STRENGTH YOU WANT but will require much less material—and the saving of material thus gained can be put to other war production purposes.

Engineering departments less familiar than Lamson & Sessions' engineers with these facts given you, can confidently come to *bolt specialists* for help—for our experts in bolt production are able and willing to give you correct information on your problems, and without obligation.

THE LAMSON & SESSIONS COMPANY, 1971 W. 85th St., Cleveland, O.

These four books will help you in specifying and buying "standard" bolts, nuts and "specials"

THE LAMSON BLUE BOOK—is our complete Catalog of standard products excepting our Aircraft products.

"BOLTS, NUTS & SCREWS"—70 pages of technical and practical information. First copy gratis, requested on your letterhead. Additional copies $1 each.

"BOLT, NUT & RIVET STANDARDS"—175-page book published by the American Bolt, Nut & Rivet Manufacturers Association, 1550 Hanna Bldg., Cleveland, Ohio. Price one dollar per copy. *(Order from publisher, please.)*

"SIMPLIFIED STOCK LIST"—Of bolts, nuts and screws, conforming to latest revisions of the Office of Price Administration, and of great value in showing you in what ratio quantities of various standard products are kept in stock for deliveries, by your jobbers and in our own (and other bolt manufacturers') warehouse stocks.

LAMSON & SESSIONS

BOLTS · · NUTS · · COTTERS · · CAP SCREWS · · SPECIALS

Your Jobber Stocks the Lamson Line

"GOD HELP ME IF THIS IS A DUD"

THAT grenade *will* explode exactly when it's meant to . . . because Uncle Sam demands virtual perfection in all his war materials.

When good American lives are at stake, the "simple" problem of producing the springs that cock our soldiers' hand grenades assumes tremendous importance.

Years of patient research have made sure that the delicate torsion spring that sets off the grenade will operate with the exact, split-second timing that spells the difference between life and death. Insuring the unfailing performance of springs of every kind, in every kind of war weapon, under every condition of weather, temperature and climate is our biggest job right now and we're proud of the success we've made at it.

If you need springs to meet the tough requirements of ordnance application, our spring specialists will be glad to assist you. You'll find their intimate knowledge, not only of springs but of the wartime steels now available, very helpful in solving your spring problems economically and with least waste of time.

U·S·S American Quality Springs

AMERICAN STEEL & WIRE COMPANY

Cleveland, Chicago and New York

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

PURCHASING PREVIEWS

From the Washington office of

PURCHASING

National Press Building
Washington, D. C.

March 1, 1943

For Purchasing Executives:

Question of a "Bedrock Civilian Economy" is being discussed, with strong sentiment within the War Production Board that civilian industry be squeezed still further.

Obviously, the squeeze cannot be applied through further restrictions over use of metals. Consumer durable goods output entailing use of metals is at a minimum. There may be further restrictions, but they are not likely. There has been recurrent effort to issue a "catch-all" metal use limitation order, but such a measure is not considered necessary.

Manpower control will be the method from now on through which the civilian economy will be further contracted.

The WPB Division of Civilian Supply has prepared a report on a "bedrock civilian economy". The report is confidential, and is merely for the purpose of channeling any squeeze that may be exerted on the civilian economy. The terms of the report are so restrictive that they hold little reality at this time. The report, however, must be judged in terms of possible developments during a large scale battle, with a much greater drain made necessary by the needs of the military.

In discussions of a "bedrock" economy it has been pointed out that the minimum economy and civilian necessities of an urban community an ocean's distance from a battlefront is much greater than the minimum needs of a civilian populace under the fire of an invader's guns.

The squeeze on the civilian economy will therefore be geared to the course of the war. The differences in opinion among WPB officials as to what further curbs should be imposed on the civilian economy at this time arise out of the individual evaluations of the course of the war.

* * *

Price Increases are Considered Inevitable, with major effort to be directed toward keeping the "cost of living" from rising too rapidly. There is some question as to how much of a rise in the cost of living index can be expected. OPA Administrator Prentiss Brown was quoted as saying that half a percent increase per month can be expected. He later stated that he was misquoted.

General view is that the pressure on prices will inevitably force an increase in prices. The half percent a month figure may be a conservative estimate. The increases will not be on the basis of regular intervals. Pressure on price levels is a cumulative force. An increase in price of farm products does not reflect in food costs immediately. The continued shrinkage in volume of consumer goods does not reflect in the price of such goods month by month. On the other hand, a reduction in sales volume becomes reflected in the price to the consumer due to the increase in costs of handling.

Some further controls to retard this cycle can be expected. Control over commercial rents is considered inevitable. Further simplification of goods wlil be a necessary counterpart to the trend of the war economy.

Price level of light and power can be considered frozen with few exceptions, but it must be taken into account that a paramount factor in

cost increases will be labor, and labor costs cannot be stabilized.

Regardless of freeze orders, legislation, or any other measures, labor costs will continue to increase——in some instances through higher wage payments, and in other cases merely through the drain on skilled labor, with replacement made by hirings of green labor.

Ceiling on prices will be dictated as much by how long the war will last as by any regulation issued by Stabilization Director Byrnes or Price Administrator Brown.

* * *

WPB Chairman Donald Nelson Has Stressed to all employees of the board that their function is that of a "service organization". Chairman Nelson has adopted the idea of sending "Policy Letters" to employees of WPB as a means of keeping the rapidly expanding staff informed on policy decisions. In outlining how WPB should "service" industry, Chairman Nelson pointed out:

"We have a definite responsibility in dealing with the public and industry. This is not the responsibility of any one group in our organization. Everyone in WPB——whatever his job——is, in the fullest sense of the word, a public servant.

"Answering mail promptly, returning telephone calls at once, giving vigorous help in filling out forms and questionnaires, seeing that office visitors get help quickly——these jobs may seem tedious, but to the individual involved they are often of the greatest importance.

"While such responsibilities may often become onerous, it is precisely at such times that we must exert extra effort. Anyone can do an easy job; the test of a good WPB employee is whether he can perform with courtesy and precision when the going gets tough.

"Let me suggest this principle: In the face of any call for help, let's do the job we would want done if we ourselves were on the other end of the request."

* * *

Lend-Lease Shipments Abroad have been blamed for the shortages which are developing in food and clothes. Facts are that Lend-Lease shipments constitute only a small percentages of total output. Increased purchases by consumers whose income has been multiplied by wages in war industry are a large factor in the shortage picture. Members of Congress who had been prepared to criticize the Lend-Lease program on the grounds that it deprived U.S. consumers of needed supplies were startled at the smallness of the percentage of foodstuffs shipped on Lend-Lease account. Large military consumption and increased consumer purchases during the off-season producing period coupled to produce a shortage of dairy products at time when only small quantities were going to Lend-Lease. These shipments of food will be stepped up, but still will constitute a small percentage of the total produced.

* * *

Transportation Controls Will Be Tightened on an industry basis. Where previously Office of Defense Transportation orders were of an industry-wide nature, trend will be for restrictions drawn specifically to regulate transportation within an industry. First action of this nature was issued by the WPB Director General for Operations relating to steel tank cars and steel tank trucks. The action——General Transportation Order T-1——is designed to regulate transportattion by tank car and truck by class of production, with the regulations drawn in accordance with the peculiarities and requirements of the specific product. Objective of the WPB action is similar to that of the ODT orders——elimination of excessive hauling. However, the specific treatment also allows for prohibition against transportation of non-essential products except under special authorization of WPB.

"Bound to Get There"

On far-away docks—in foreign fields—it's important that your shipments are shipped right . . . are strapped right. Acme Steelstrap complies with all Federal Strapping Specifications . . . helps get shipments where they're needed . . . quickly, safely and economically.

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Every shipment occupies valuable cargo space. But a damaged shipment might just as well not have been delivered—it is useless to the receivers. On the other hand, the shipment that receives adequate protection is ready for immediate use.

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ACME Silverstitchers

STEP-UP OUTPUT OF *STITCHED CARTONS*

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Acme Silverstitchers are made in standard and special sizes and types . . . to meet every stitching requirement. Sturdily built . . . easy to operate . . . and require a minimum of maintenance.

Acme SilverStitch

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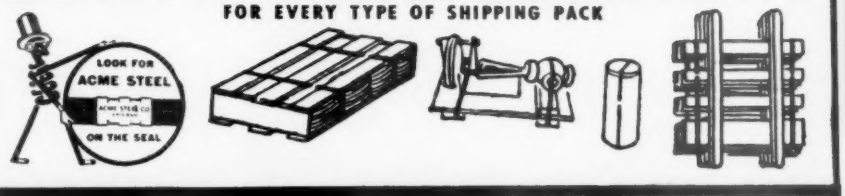

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Send the free folder with machine specifications and the facts on faster, easier, lower-cost box stitching.

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Company.....
Address.....
City.....*State*.....

When writing Acme Steel Company please mention Purchasing

By getting away from *Piecemeal Bids*— ...we got the job done faster

An actual example of the time-saving gains of the Graybar MM Plan*

The contractor for an important Mid-West ordnance plant had solicited bids on electrical supplies on a piecemeal basis, month-to-month. For each order, requisitions went from the engineering department to the purchasing department, which in turn obtained prices from a number of different sources, and finally let the contract with a plea for fast delivery. In the meantime, several weeks time were lost, and no plan for scheduling deliveries could be developed.

Working with the project engineer to speed up delivery, GRAYBAR proposed that bids for material be sought on an "all-that's-needed" basis, covering the period of construction of the entire project. Then, items could be obtained as needed from a continuous source of supply.

The proposal was adopted, and GRAYBAR'S quotations proved that no sacrifice of economy was necessary in instituting the new purchasing plan. The balance of electrical supplies for the job were delivered *as needed* by GRAYBAR. Delivery delays were cut, record-keeping was simplified, and the contractor expressed himself as "entirely satisfied".

In other cases, purchasing is done on "open order", without securing estimates, again at no sacrifice in economy, and with an appreciable saving in time.

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When writing Graybar Electric Company please mention Purchasing

PURCHASING

MARCH, 1943 . . . . . CONTENTS

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MATERIALS ACCOUNTING
or
MATERIALS ACCOUNTING?

WITH increasingly stringent governmental regulation of materials, with allocation, allotments and scheduling, limitation of what may be bought, in what quantity, and for what purpose—the emphasis and the opportunities in purchasing work are changing from procurement to utilization and control. Purchasing executives—particularly those who have defined their function literally in terms of the buying responsibility—will do well to note this fundamental development and to take stock of their departmental activities in the light of these new conditions.

Control is a matter of specialized records and administration. It has vast potentialities, and it is readily conceivable that this relatively new responsibility might fall upon any one of a number of departments—production, planning, accounting, purchasing or stores. As a matter of fact, in the individual company, it is likely to become the responsibility and the opportunity of whatever department shows the initiative and ability to carry it through most effectively. The short-sighted buyers who complain that regimentation will eliminate scientific purchasing, will have only themselves to blame if that result follows for them.

Frankly, the accountants have taken the initiative in this movement, both individually and as a professional group, and have to their credit much sound and constructive accomplishment toward the readjustment. As a result, management and government are beginning to think of materials control in terms of accounting vocabulary and accounting practices.

We are convinced that materials control is still primarily concerned with the materials rather than with the paper work, that records should properly be regarded as a mechanism by which the actual materials may be administered. And materials are the province of the Purchasing Agent. But it remains for each individual purchasing executive to convince his management, by progressive thinking and action, that intelligent administration of the materials of production is still the factor that counts in keeping the wheels turning, and that records and systems—vital tools though they may be—are still but the tools of control. The accent is on materials.

The future of purchasing, in the period that lies ahead, rests in the decision of whether we are to have materials-*accounting* or *materials*-accounting.

Stuart F. Heinritz

RYERSON *Immediate* STEEL

United States Troops Advancing on Oran. Photo by U. S. Army Signal Corps.

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BACKING up our fast-moving mechanized Army takes fast-moving production—swift action that starts the minute the order is given, that never sleeps, and that turns out jobs in days, which normally would take weeks to do.

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Result: Delivery to the Army in *one week* of equipment which normally would have taken many weeks to produce. An Army-Navy "E" Award to the manufacturer and a warm letter of thanks to Ryerson.

An unusual case? Somewhat—but typical of hundreds in which Ryerson stocks and Ryerson service have helped get war equipment started *faster*—on their way *sooner* to our fighting men.

In all probability, Ryerson Steel-Service can assist you on your rush war production contracts, if "spot" steel is required. One of the ten strategically-located Ryerson plants is nearby. Phone, wire or write; you'll receive quick personal cooperation!

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RYERSON STEEL-SERVICE

Accounting and Record Keeping Under CMP

Some suggestions from headquarters on how industry can best handle records and paper work in connection with the Controlled Materials Plan

By DAVID NOVICK

Director, Controller Division of the WPB Distribution Bureau.

GOVERNMENTAL wartime controls have imposed a fundamental discipline on industry in its procurement of material. Special controls became a part of purchasing practices with the introduction of the first priority regulations, and these were expanded and formulated under the Production Requirements Plan. The accounting and record keeping required by Controlled Material Plan regulations does not differ greatly from previous priority record requirements.

Prime and secondary consumers operating under CMP will have to keep adequate records of materials allotted them, the reallotment of materials and the placing of purchase and/or delivery orders for materials. Consumers may adopt any system of records which will account for the allotments received.

It has been the objective of the Controller Division of the WPB Distribution Bureau to suggest a record system that may be adapted to the needs of the individual purchasing agent.

This suggested accounting system is applicable only to a record of allotments, and consumers will continue to use their existing systems of recording materials received, put into production and in inventory. Such records should not be confused with the CMP allotment records.

Key to the CMP record will be the Allotment Number, which will designate the Claimant Agency through a letter symbol, and the program, schedule and authorized delivery time through a number code.

Letter symbols are as follows: A for the Department of Agriculture; C for the Aircraft Resources Control Office (agent for Army Air Forces and Bureau of Aeronautics of the United States Navy); D for Canada (Canada is not a Claimant Agency, but a letter symbol will be used on allotments on its behalf); E for the Board of Economic Warfare; F for the Facilities Bureau of the War Production Board; H for the National Housing Agency; L for the Office of Lend-Lease Administration; M for the Maritime Commission; N for the Navy Department; O for Ordnance of the War Department; P for Petroleum Administration for War; R for Office of Rubber Director; S for Office of Civilian Supply; T for Office of Defense Transportation; U or Office of War Utilities Director; and W for War Department, except Ordnance. Additional agencies may be designated from time to time.

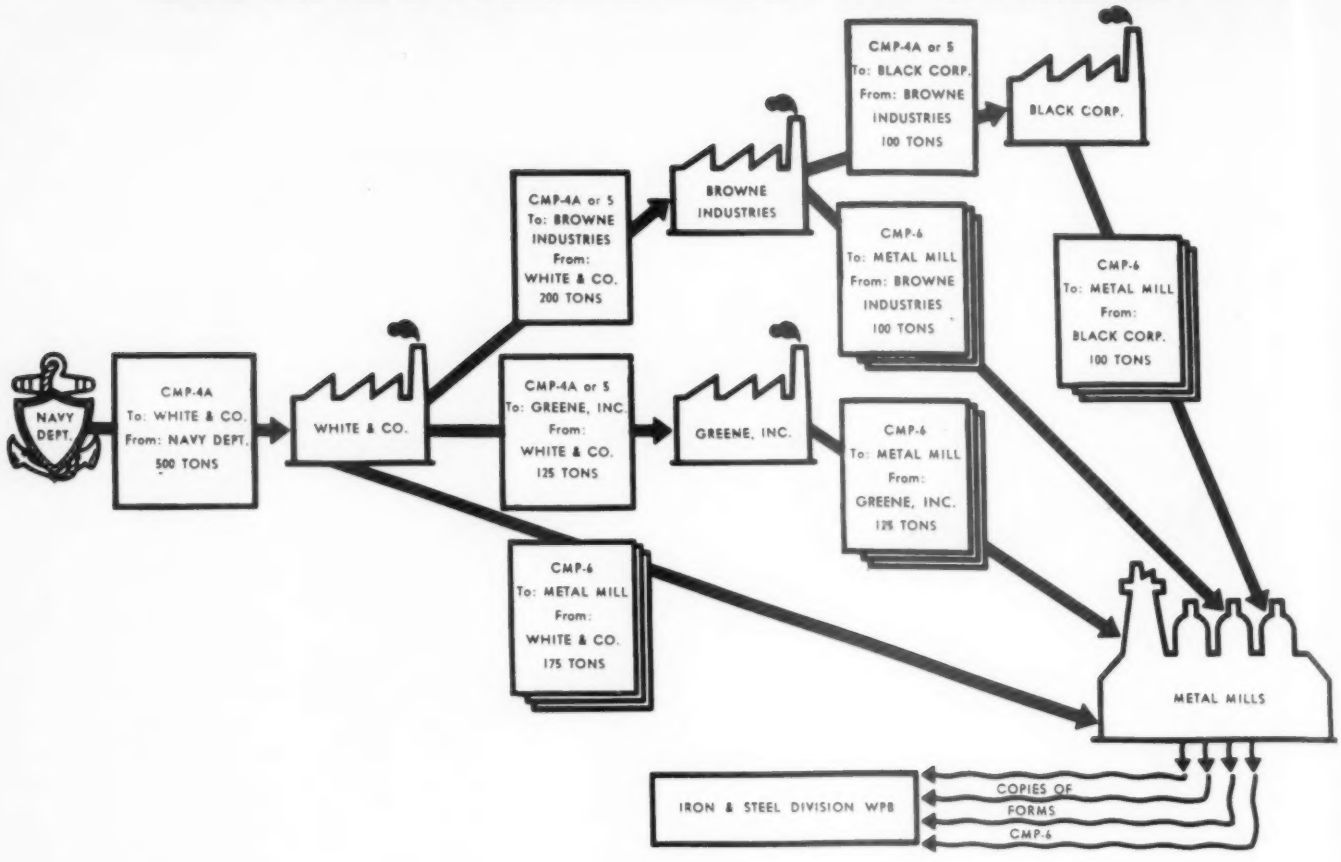
Example of how the Allotment Number indicates Agency, program, schedule and delivery time follows:

"W-8234-567-16 through 18"

W indicates War Department. The group of four digits "-8234-" indicates the program. "W-8" indicates that the program is for the Signal Corps of the War Department, and the "-234-" represents the type of production, such as "radio and radar equipment". In this manner, the first portion of the Allotment Number reveals that the Claimant is the War Department, and the production is radio equipment or similar product. The three digits "-567-" represent the authorized schedule to a prime contractor—for example, John Doe & Co., producer of radio tubes. The last two digits "-16 through 18" represent the authorized delivery date—the sixteenth month through the eighteenth month (Second quarter of 1943, as the program dates from January, 1942, as the first month).

This complete allotment number appears only on the order from the Claimant Agency to the Prime Con-

DISTRIBUTION OF AN ALLOTMENT



tractor (prime consumer). In purchasing parts of materials, the prime identifies the order only by Claimant Agency symbol, by the first digit identifying the major program, and by the last digits indicating the calendar quarters in which the allotment is authorized.

As an example, the prime cited in the foregoing would identify his Purchase Orders with the Allotment Number "W-8-16", showing that the order is for the Signal Corps of the War Department, and the allotment is authorized for the Second Quarter of 1943.

Allotments will be authorized by Claimant Agencies on a quarterly basis, with the digits used in the allotment numbers to denote the quarter representing the first month of a quarter, e.g.:

Second Quarter 1943	"16"
Third Quarter 1943	"19"
Fourth Quarter 1943	"22"
First Quarter 1944	"25"

However, the specific month of delivery must be designated on the Purchase Authority (CMP-6,) using the digit "17" for May, 1943, "18" for April, etc.

In adopting a record system to meet the requirements of record keeping under CMP Regulation No. 1, the considerations which will guide the consumer are:— the size of the consumer's operations; number of products; number and quantities of controlled materials used; number of contracts; procurement policy, etc. The records may be kept in any of several departments of industry, such as the accounting department, purchasing department, production offices, or priorities department. Again the decision will be guided by the needs of the specific plant.

Obviously, under such circumstances it is impractical to establish a standard record system for all industry. As indicated previously, the procedures and forms shown are merely suggestions by the War Production Board to serve industry in the nature of a guide.

The consumer may wish to consider the possibility of a file case record as opposed to a card record. If all transactions regarding an allotment received are handled at one time, the quantity received on allotment will be either reallotted or purchased, and copies of the several forms will show that the allotment received is exactly offset by quantities reallotted or purchased. These papers all filed together will provide a complete record. If, on the other hand, purchase or reallotment extends over a considerable period of time, a card record may be preferable.

Allotment Card

The basic record used in accounting for allotments received may consist of an allotment card. The suggested card provides space in the heading for the Claimant Agency symbol and major program number, the controlled material item, unit of measure, and the calendar quarter. The body of the card has columns for recording date of entry, description of the item of reference, quantities received on allotments, quantities reallotted, quantities purchased, and the unused allotment balance. The suggested form is designed for a 5" x 8" card, and has columns for recording quarterly allotments. A consumer may wish to increase the size of the card to include additional columns so that more than one quarter's allotments may be recorded on the same card.

Allotments Received will provide the basis for the first entry on the allotment card. Allotments will be made on forms CMP-4A, CMP-4B, CMP-4C, CMP-5,

or such other forms as may be authorized. CMP-4A, CMP-4B and CMP-4C are combination application and allotment certificates and may be submitted to a Claimant Agency by a prime consumer, to a prime consumer by a secondary consumer, or to a secondary consumer by another secondary consumer. Form CMP-4A is used by a manufacturer of Class A products; form CMP-4B by a manufacturer of Class B products, and form CMP-4C is submitted by a consumer of controlled materials required for construction. For purposes of discussion, CMP-4A, CMP-4B, CMP-4C will be referred to a CMP-4 forms.

If the CMP-4 form is received from a Claimant Agency, the quantities of controlled materials may be shown as a total for the quarter or separately by months of the quarter. If the CMP-4 form is used in making allotments between consumers, then only quarterly quantities should be shown on the form.

Schedule II of CMP Regulation No. 1 provides for a short form of allotment, CMP-5. CMP-5 may be prepared as a separate document and physically attached to the delivery order, or it may be placed on the purchase or delivery order. The short form of allotment may be used in reallotting controlled materials originally allotted on forms CMP-4A, CMP-4B, CMP-4C.

The quantities of controlled materials allotted to the consumer of any CMP-4 form or CMP-5 will be entered on the allotment cards, establishing the balances available for purchase or distribution to other consumers.

For example, a prime consumer receives a CMP-4A from the War Department having an allotment number of "W-8234-567" and showing the following quantities of controlled materials:

Month	*Month Digits*	*Steel — Net Tons*	
		Carbon	*Alloy*
April, 1943	(16)	40	5
May, 1943	(17)	50	6
June, 1943	(18)	60	6
July, 1943	(19)	40	4
August, 1943	(20)	40	4

Two allotment cards are used to record carbon steel and two for alloy steel. The heading of the first carbon steel allotment card shows the identification "W-8-16", and the material, carbon steel. The date the CMP-4A is received is written in the date column. The complete allotment number is entered in the reference column. The monthly quantities are then entered separately in the column headed "Allotments Received", and the balance of 150 tons extended in the balance column. Another carbon steel allotment card is headed up and posted in the same manner, except that the identification is "W-8-19" to indicate the Third Quarter 1943.

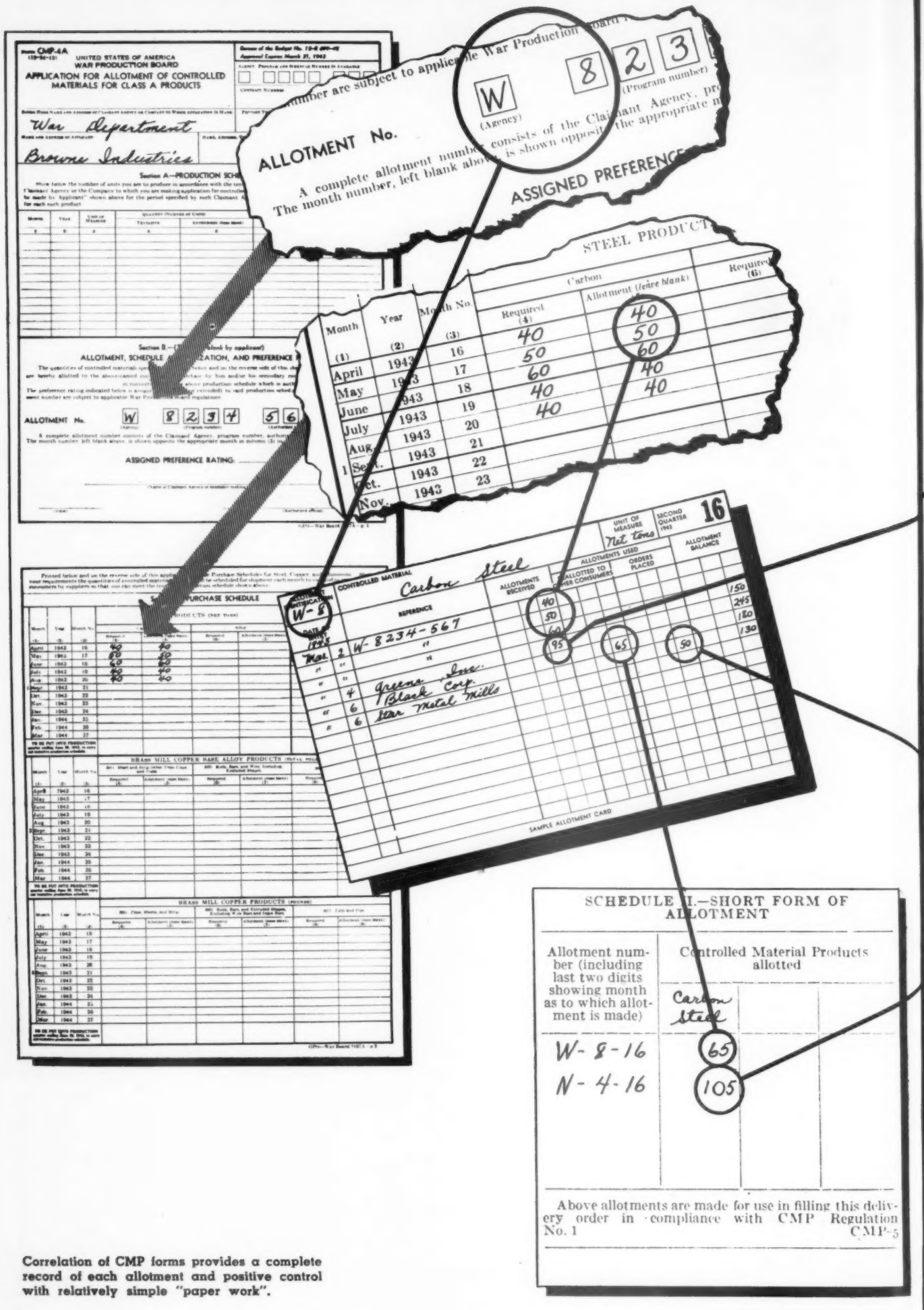
The same procedure is followed for heading and posting the alloy steel allotment cards. If the CMP-4A contained allotments of other controlled materials, additional allotment cards would be required.

Any other allotments received on CMP-4A from the War Department for the Second or Third Quarters of 1943 and bearing a program number starting with the digit "8" would be posted to the same cards. Allotments of carbon steel and alloy steel received from another consumer on CMP-4 forms or CMP-5 bearing the identification "W-8-16" or "W-8-19" would also be posted to the same cards.

Incoming allotments on CMP-5 are posted to controlled material allotment cards in the same manner as allotments received on CMP-4 forms.

Allotment Identification	**Controlled Material**		**Unit of Measure**	**Second Quarter 1943**
Date of Entry	**Reference**	**Allotment Balance**	**ALLOTMENTS USED**	**Received Allotments**
			Reallotted to Other Consumers / **Orders Placed**	

Suggested form of allotment card to be used as basic CMP accounting record

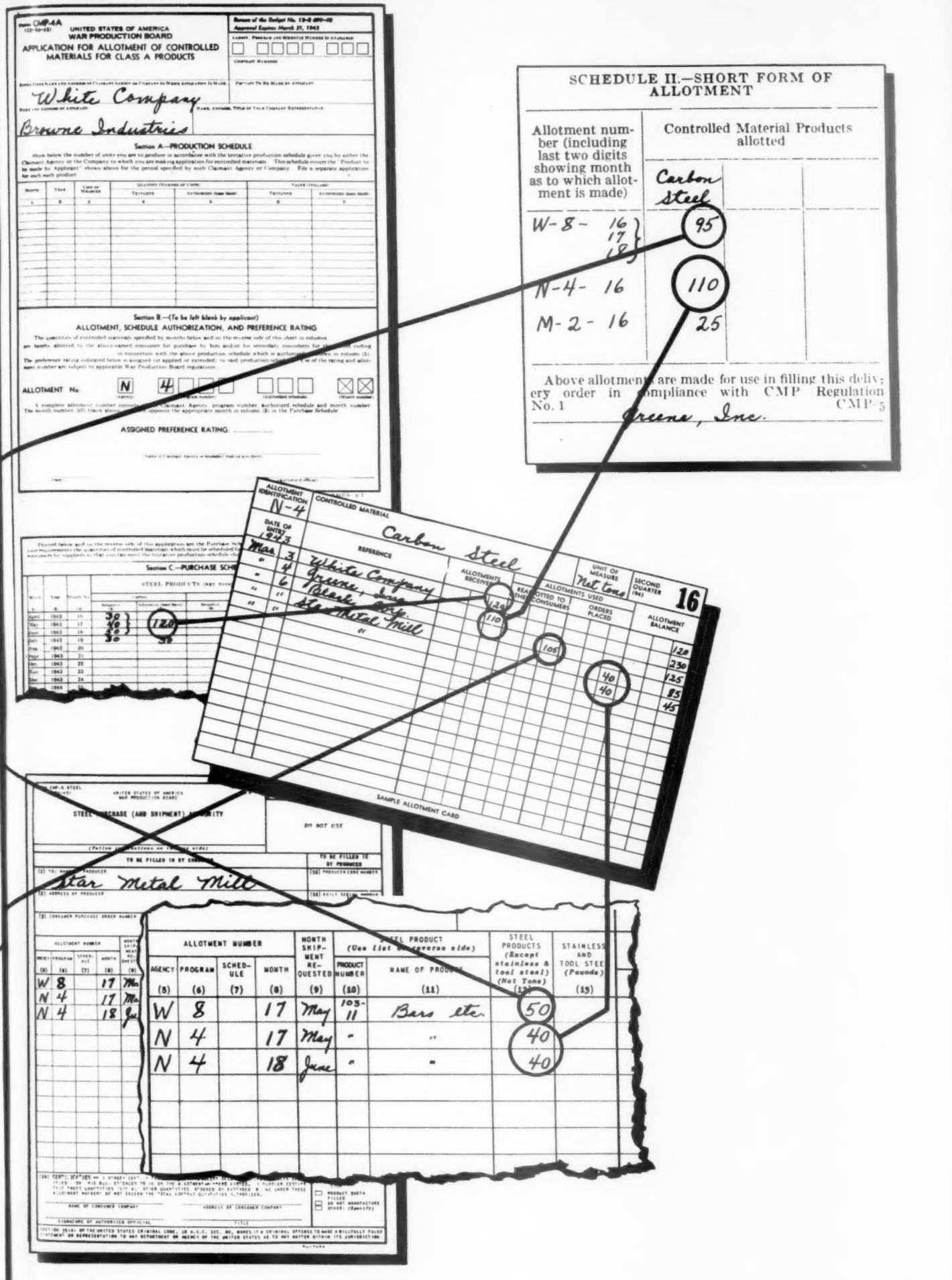


SCHEDULE II.—SHORT FORM OF ALLOTMENT

Allotment number (including last two digits showing month as to which allotment is made)	Controlled Material Products allotted			
	Carbon steel			
W-8-16	65			
N-4-16	105			

Above allotments are made for use in filling this delivery order in compliance with CMP Regulation No. 1 CMP-5

Correlation of CMP forms provides a complete record of each allotment and positive control with relatively simple "paper work".


Form CMP-4A
UNITED STATES OF AMERICA
WAR PRODUCTION BOARD
APPLICATION FOR ALLOTMENT OF CONTROLLED MATERIALS FOR CLASS A PRODUCTS
White Company
Browne Industries
Section A—PRODUCTION SCHEDULE
Section B.—(To be left blank by applicant)
ALLOTMENT, SCHEDULE AUTHORIZATION, AND PREFERENCE RATING
ALLOTMENT No. N 4
ASSIGNED PREFERENCE RATING
SCHEDULE II.—SHORT FORM OF ALLOTMENT
Allotment number (including last two digits showing month as to which allotment is made)
Controlled Material Products allotted
Carbon steel
W-8- 16 17 18
95
N-4- 16
110
M-2- 16
25
Above allotments are made for use in filling this delivery order in compliance with CMP Regulation No. 1
CMP-5
Greene, Inc.
ALLOTMENT IDENTIFICATION N-4
CONTROLLED MATERIAL Carbon Steel
DATE OF ENTRY 1943
REFERENCE
ALLOTMENTS RECEIVED
ALLOTMENTS USED
UNIT OF MEASURE Net Tons
SECOND QUARTER 1943
16
Mar 3 White Company 120
" 4 Greene, Inc. 110
" 6 Blank, Corp. 105
" " Star Metal Mill 40
" " 40
ALLOTMENT BALANCE
120
230
125
85
45
SAMPLE ALLOTMENT CARD
STEEL PURCHASE (AND SHIPMENT) AUTHORITY
DO NOT USE
TO BE FILLED IN BY CONSUMER
TO BE FILLED IN BY PRODUCER
Star Metal Mill
ALLOTMENT NUMBER
MONTH SHIPMENT REQUESTED
STEEL PRODUCT (Use List on reverse side)
STEEL PRODUCTS (Except stainless & tool steel) (Net Tons)
STAINLESS AND TOOL STEEL (Pounds)
AGENCY (5) PROGRAM (6) SCHEDULE (7) MONTH (8) (9) PRODUCT NUMBER (10) NAME OF PRODUCT (11) (12) (13)
W 8 17 May 103-11 Bars etc. 50
N 4 17 May " " 40
N 4 18 June " " 40
NAME OF CONSUMER COMPANY
ADDRESS OF CONSUMER COMPANY
SIGNATURE OF AUTHORIZED OFFICIAL
TITLE

For example, a consumer receives a CMP-5 which contains the following allotments of controlled materails:

Allotment	*Steel — Net Tons*	
	Carbon	*Alloy*
N-4-16	120	18

First it should be determined if the consumer has received any other allotments from the Navy Department "N", for the major program "4", for the Second Quarter 1943 "16". If the consumer had received such allotments, the above quantities would be posted on the same cards and the balances increased. If the incoming allotment was the first received for N-4-16, then new allotment cards are required.

Allotments to Secondary Consumers

As soon as the quantities to be subdivided have been determined, the appropriate allotments are made on either CMP-4 or CMP-5 forms. The quantities extended or passed on to secondary consumers are posted to the proper allotment cards in the "Reallotted to Other Consumers" column, reducing the balance.

It is assumed that a consumer will make allotments for all of the quarters for which allotments are received. It would facilitate posting allotment extensions if the allotment cards covering all of the controlled materials contained in a single allotment number are held in a group. For example, the CMP-4A prepared by the consumer shows:

Allotment	*Steel— Net Tons*		*Plate, Sheet*		*Tube &*
Number	*Carbon*	*Alloy*	*and Strip*	*Bars*	*Pipe*
N-1-16	24	6	15,000	9,000	17,000
N-1-19	7	1	4,000	2,000	4,000

The quantities shown in the above allotment extension are posted to the allotment cards, which are arranged in the same order as the controlled materials on the allotment extension.

There may be many sub-allotments made from the same allotment identification. As soon as all extensions have been posted to the allotment cards, they are placed in a file containing other allotment cards for the same controlled material.

Small Quantities Involved

Placing of Orders for Class A Products Requiring Small Quantities of Controlled Materials, Without Making an Allotment.—CMP Regulation No. 1 provides a special procedure for consumers purchasing Class A products containing small quantities of controlled materials without making an allotment.

A person requiring any Class A product in which the quantity of controlled material constitutes a "small order", as defined below, may, in lieu of making an allotment, place on his order the applicable allotment number followed by the symbol "SO". The regulation provides that no person shall subdivide his requirements for Class A products into small orders for the purpose of coming within this provision.

"Small order" means a delivery order for a Class A product placed with the manufacturer thereof by a consumer, where the aggregate amounts of controlled material required by the manufacturer to fill such order, together with all delivery orders for the same Class A product placed by the consumer with the same manufacturer calling for delivery during the same month, do not exceed the following:

Carbon steel (including wrought iron)	1 ton
Alloy steel	400 lbs.
Copper and copper base alloys	100 lbs.
Aluminum	20 lbs.

A manufacturer of Class A products receiving a small order is not required to furnish a bill of materials or to file an application for allotment, but he is required to furnish a statement, if requested, that the controlled materials required to fill the order come within the limits of a small order. All orders received in accordance with this provision may be grouped under the symbol "SO" by the manufacturer making the product.

To minimize the amount of work in accounting for allotments received, a consumer purchasing Class A products requiring small amounts of controlled materials is not required to record the quantities of controlled materials contained in small orders. In placing a small order for Class A products the exact quantites of controlled materials involved are not stated on the purchase order, and no charge is made by the buyer to his allotment accounts.

A vendor receiving a number of small orders should keep a memorandum record of each small order received. As soon as a substantial number of such small orders have been received, the consumers should estimate the quantities of controlled materials necessary to produce the number of Class A products for which small orders have been received. The quantities so estimated would then be posted to allotment cards as an allotment received. The symbol "SO" would be written on the allotment card instead of the Claimant Agency symbol and major program number.

Purchase of Controlled Materials

CMP Regulation No. 1 provides that when delivery orders are placed with primary producers of controlled materials, form CMP-6 be properly filled in and executed by the purchaser, except in the case of orders for steel castings. Three copies of CMP-6 will be forwarded with the purchase order. The allotment account is posted from the copy of CMP-6 retained by the purchaser.

It is not necessary to prepare a CMP-6 when placing an order for steel castings, but the allotment identification must be shown on the purchase order. Entries for steel castings purchased are made on allotment accounts from a copy of the purchase order. On either the CMP-6 or purchase order for steel castings, the consumer must indicate the month number identifying the month of delivery—for example, "17" for May, 1943.

Procurement from Warehouses

The procedure to be followed in procuring controlled materials from warehouses is indicated in CMP Regulation No. 4. Except for the quantities and conditions specifically set forth in CMP Regulation No. 4, purchases of controlled materials from warehouses will be made under allotment identification and will be entered on the allotment records in the same manner as a purchase from a metal mill.

The allotment identification will appear on all CMP-6 forms and purchase or delivery orders. Many CMP-6 forms and purchase or delivery orders will carry more than one allotment identification. In addition to allotment identifications for major programs of Claimant Agencies and small orders (SO), consumers will place orders for controlled materials to be used as maintenance, repair and operating supplies. CMP Regulation

Continued on page 206

Working with paper segments, J. C. Smith, a G-E planner, arranges a layout for parts to be cut later from metal plates.

GETTING MORE PRODUCT from LESS METAL

Purchasing Agents are keenly interested in methods for getting the greatest number of parts from the smallest amount of material

By J. F. CUNNINGHAM

Assistant to Vice President, Apparatus Manufacturing
General Electric Company

AT first glance, there would seem to be little connection between industrial efficiency and such pastimes as cutting out paper dolls or putting together jig-saw puzzles. But these very techniques are helping to solve one of war industry's toughest problems—the scarcity of vital materials. Thousands of tons of metal urgently needed in the war effort today are made available by American industry's refinement of such methods over a period of years. Almost daily trained planning experts and men on the production line together develop plans

Henry Hakey, G-E punch press operator, stamps a punching shaped like a top hat from a thin strip of steel. By running the strip through the press twice, in opposite directions, only a thin frame of metal remains as scrap.

for getting still greater numbers of parts out of metal sheets and plates.

At General Electric plants alone thousands of parts cut from flat sections of scarce metals go into small motors, huge turbines and other complex electric apparatus contributing to the motive and firing power of weapons of war. Many of these parts are made from flat stock sheets. Some are simple circles, some are triangular and others have unusual shapes resembling stars, banjos or top hats. A few are as complex as the microscopic pattern of a snowflake. But when laid out for cutting from stock sheets all must be nested so closely together that only a narrow strip of metal will remain as scrap.

After the designs for a new General Electric product have been engineered, blueprints specifying the shape, size and thickness of parts are furnished the planning department. One of the many responsibilities of this department is the development of methods obtaining the greatest number of parts from the smallest amount of materials. The best possible nesting arrangements for such simple shapes as square, triangles and circles can be expressed in simple formulas so that, given the measurement of a part, a planning man can check readily the ideal length and width of material from which they are to be cut.

Often, however, complicated parts differing widely in shape and size must be nested together, and here the planning department used the "cut and try" method. Parts are drawn to scale on ordinary paper, then cut out with a pair of scissors, a practice to which planning men sometimes refer as "cutting out paper dolls."

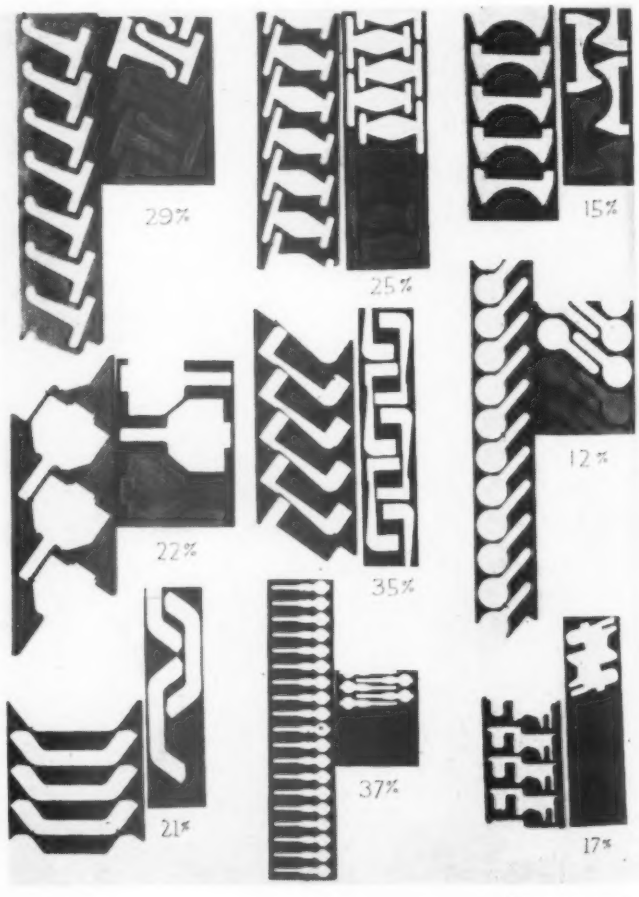
The pieces of paper are then shifted around until they nest snugly within the proportionate size of a stock sheet of metal, much as the pieces of a completed jig-saw puzzle mesh together. Often parts for more than one product are placed in the same layout in order to obtain closer nesting. When the planners discover that slight changes in the length, width or thickness of a part will enable more parts to be cut from the same layout, they consult with engineers who designed the part to see if the change is possible.

The layout is then sent to the factory for guidance in actual cutting. There are several mass production methods of cutting metals, depending on the thickness of the stock. Power-driven shears and saws are sometimes used as well as punch presses provided with pressure up to 600 tons, from which parts are stamped from metal sheets a quarter of an inch thick or less. For heavier material, up to 11 inches thick and generally referred to as plate, gas torches are used in an operation known as flame-cutting.

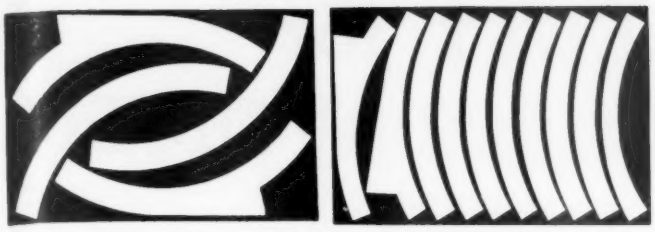
Adapting Layout to Plate Size

The best possible nesting arrangements are particularly important at present for metal plates which, because of war demands, mills are not always able to supply promptly in certain stock sizes. As an example of how manufacturers must plan to conserve materials by revising their nesting layouts to whatever sizes are available, last year production of an important war item was threatened by slow deliveries of heavy metal plates to General Electric. From these plates were cut a large circle-shaped part, divided into four 90-degree segments. The segments can be cut from a much smaller plate than the full circle would require, and later welded together.

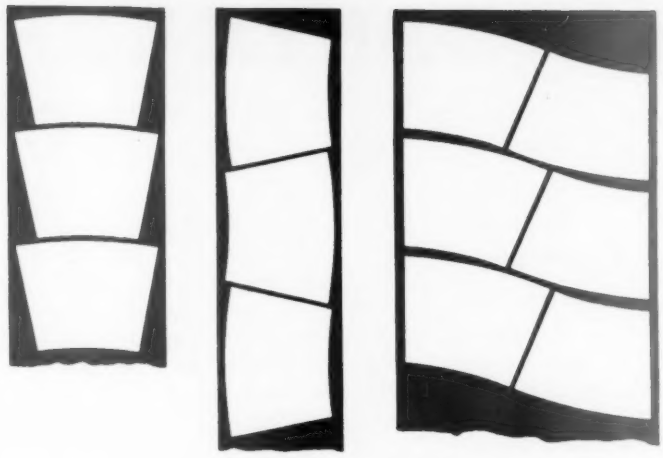
The problem of adapting this particular layout to plates of a size already available was solved by Spencer Frederick, a war worker whose job is to make the full



An exhibit of nine examples of improved utilization of materials worked out by planning experts at G.E. and other war plants. Strips at left represent old method; at right, the new. Figures show percentage of metal saved. Dark portions represent leftover material. Before they become scrap, small parts are sometimes obtained from these portions.



Spencer Frederick, G-E war worker, saved 537,000 pounds of steel in 1942 by arranging for the ring shape shown to be cut in six 60-degree segments instead of four 90-degree segments. This makes possible closer nesting and more parts from a single plate.



Three layouts showing how the same parts can be cut from fewer square inches of material. Arrangement at left can be improved by (1) centering them in a narrower strip(or (2) by cutting twice as many from a strip less than twice as wide.

sized layouts. Some of these nestings are prepared by the planning department, and others, where stock plate is used, are made by Mr. Frederick. The pattern is then followed by flame-cutting machines. He suggested dividing the circle-shaped part into six rather than four segments, because 60-degree segments, having more shallow arcs than those of 90 degrees, can be nested more closely together, side by side. The suggestion saved 537,000 pounds of steel last year. For this suggestion and a similar one Mr. Frederick has received from the Company awards totalling $1025. He is just one of the men on the production line contributing to the solution of material conservation problems by volunteering layout suggestions.

An example of a sheet layout improvement is a small T-shaped part stamped out on a punch press. Formerly a strip of metal slightly wider than the "T" was fed through such a press leaving as scrap a strip which looks like a long row of "T's" on a typewritten page. Working with the tool designer a planner discovered that by using a slightly wider strip of material, double the amount of pieces could be obtained if the strip were reversed and fed through the press a second time. Because the "T's" were required in considerable quantity, however, the planning department specified a double die, or one which could stamp out two "T's" at the same time, each one on an opposite side of the strip. As a result the same number of "T's" could then be stamped out by feeding the strip through the press once as had previously been obtained by feeding it through twice.

In obtaining circular parts which must be of a solid piece, virtually all of the space remaining in the squares from which they are cut is used. For example, one stamping job called for a number of ring shapes and another for a quantity of pieces shaped like a top hat and twice as thick as the ring shape. At the suggestion of planners, designs were changed so that the thicknesses were the same, enabling both parts to be cut from the same square sheets. Now, in addition to the ring shape, eight top hat pieces are also obtained from a single sheet—one from each of the four corners and four more from the center.

The most obvious method of stamping out circular parts such as washers on a punch press is in a single line, from a long, narrow sheet. Several years ago, however, an arrangement was worked out for nesting rows of circles, one below the other, on a wider strip. With the circles beginning each row arranged in a line at an angle of 60 degrees with edge of the stock, a simple mathematical formula was developed for deciding on the width of stock required for stamping out circles of any size.

The planning of nesting layouts comes under the heading of "materials utilization," an industrial term for any-method of obtaining the greatest number of parts from a given amount of materials.

An example of how G-E planners "nest" odd shaped apparatus parts o obain he maximum use of material.

How two rings can be cut from a square steel plate. The second is cut in segments from the center portion and welded together.

An arrangement for obtaining a large circular piece and eight small parts for motors from a piece of material.

BUYING SAFETY for 6,000,000 WOMEN

What Purchasing Agents need to know about the equipment available for preventing casualties among our feminine fighters on the factory front.

By HERBERT E. FLEMING

In this crucial year of 1943 the number of girls and women in war production in plants in the United States will boom from the 4,000,000 of last year to 6,000,000. That is the estimate of the Office of War Information, headed by Elmer Davis, whose voice carries conviction because of unemotional faithfulness to facts. The taking on of 2,000,000 women means some new problems for many Purchasing Agents and buyers. That will be so especially for those with either prime-contractor or sub-contractor companies which have not so far employed girls and women to run machines or to do other shop work in producing what is needed for our Army, our Navy, and our Lend-Lease Allies.

No patriotic buyer wants the men who come home from the world-wide fighting fronts after the war is won, even those who themselves come limping, to find their war-worker women wounded, casualties of military production, with patches of hair and scalp torn from their heads, scars on their faces, or hands or bodies suffering from industrial dermatitis. No practical buyer wants his company to face production losses and damage losses from failure to meet the special requirements of those women recruits as to safety. It therefore is in order for each buyer to find out what has been developed to meet those requirements. It is up to the Purchasing Department to post its company's president and general manager, vice-president in charge of production, plant superintendent or superintendents, and all production-department foremen, as well as the safety engineers, on what the market affords, and what companies already employing the 4,000,000 war working women have learned in providing for their safety.

"We have won awards for our safety rules and equipment for men, what more do we need to have?"

With just pride some superintendent or foreman will say that. Here is the answer:

"The women will need everything you have provided for the men, and then some."

Of course metal and safety-glass housing for moving parts of machines, and of course safety rules and advice by foremen, are highly important. But they are not enough.

A common hazard is shown by this drill press operator bending too close to the machinery at the risk of losing a piece of her scalp.

A. R. Bray (left), Purchasing Agent of the Standard Safety Equipment Co., conferring with Lawrence E. Dickson, President.

WAR WORKERS in 1943

For protecting the woman worker from head to toe there have come into use in war production plants many articles of effective gear. This, about all of which the buyer will do well to become well posted, is indicated in the following outline:

1. Hair — Hair guards, caps with visors and large crowns.
2. Eyes — Goggles, safety glasses ground to vision, face shields.
3. Face — veils of cellulose acetate.
4. Body — Uniforms, bibs, aprons.
5. Hands — Gloves, skin shields of liquid film.
6. Safety shoes.

"On all of the protective equipment for women war workers it must be remembered that a woman in a shop is still a woman, and it is important to keep very much in mind the need for eye appeal." There is a comment to remember. It was made by Lawrence E. Dickson, for the past twenty-one years president of the Standard Safety Equipment Co., and for the last six a director of the engineering division of the Chicago Safety Council, when interviewed by the writer on developments for safety for women in the war industries. He rated the different types of protection in part as follows:

"The most important is eye and facial. While states have differing laws, many require compensation benefits for scars, even where there is no impairment of efficiency.

"The second most important is protection against dermatitis. This you approach in three ways: First, avoid contamination by clearing up the source. Second, if that is not possible, for example not possbile to prevent contact with oils and coolants for women working on machine tools, protect with garments and gloves. The third way is to protect the skin itself with a resilient liquid film.

"The next most important protection is for the hair, and about that there has been a great and growing interest since women have gone into war production. One line of this is to prevent scalping from hair getting caught in moving machinery. Another is to protect hair against burning, for example from sparks in welding.

"In general a woman in a war plant is subject to all the hazards that a man is—plus. Her foot protection, for example, is more difficult. But shoe companies are bringing out safety shoes for women war workers—shoes that are not dainty but are not bulldozers. As a rule the women war workers like to wear uniforms; it is smart for managements of war production plants to cater to that as a safety measure, getting them away from the hazard in flimsy flammable dresses or even sloppy slacks with loose belts, and also as a measure for giving their morale a lift through emphasizing the fact that they are members of the ranks described as 'behind-the-lines uniformed forces'."

Here are some of the details that buyers need to know about the six kinds of protection for the woman war worker, from head to toe, those for hair, eyes, face, body, hands, feet:

Hair Protection: As their pioneer forebears fought the Indian with men's muskets, so today's American women war workers are fighting the axis with cutting tools of machines. The matter-of-fact accounts of the most sensational accidents they have suffered have revived use of the terrible word scalped. While operating machines, such as drills and lathes, too many have been scalped—have lost, not their complete scalps as did the victims of the Indian, but hanks of hair and scalp. This has come from bending over too close to a revolving spindle in case the worker with loose flowing hair, even

Various types of headgear have been developed for complete covering of the hair. The snood does not protect against dust or oil mists, but is extensively used in packing departments, etc. The rigid visor and semi-rigid top of the military-type cap serves as a warning bumper when the machine operator gets too close to moving machinery. Caps are made with extra fullness in the back, and can be readily cleaned and fire-proofed.

Safety equipment used in acetylene cutting operations includes a transparent face mask to protect operator against sparks, and work suit with long close-fitting sleeves for arm protection.

a short bob, has been on the job either with no protection for it or with inadequate protection, leaving some strands loose. How this happens is illustrated in the photograph showing a girl whose pompadour, not held in by her bandanna hair covering, is about to get caught as she pulls the lever bringing the drill down to the work. This hazard on machines is aggravated by the fact that moving machinery generates static electricity which sucks loose strands of hair into the scalping spot.

Because of the sensation created by this horrible hazard, one not experienced appreciably by men because of their short haircuts and their caps with visors, various new kinds of headgear for women war workers have been developed and been found practical. Some of this is for hair protection only and some for use in connection with face protection. In either case one of the objects, besides affording protection during working hours, is to save the expensive hairdo tucked under cover while work is going on. For this there has been development through three main types—nets, snoods, and caps—the latter highly perfected along the lines of men's military caps. Nets in most cases have given way to more complete protection. The snood, while it does not protect against dust, oil mists, or fire, does cover all the hair, and is used where this is all that is needed, such as working in packing departments away from machinery. But the cloth caps with visors and capacious crowns have become the most widely used by women at drills, lathes, milling machines, and grinding machines where they bend over their work and where the static electricity generated by the moving machinery attracts and entangles loose strands of hair in the swiftly revolving parts. The visor and the semi-rigid top of these caps when bumping into a machine as the worker bends over serve as a warming to her, tell her to bend back, out of danger. Unfortunately, however, some of the war-production girls feel that they are like a horse with blinders when they wear caps with solid visors. So models of caps have been developed in which these visors are made of non-flammable cellulose acetate, so that they allow light to pass through and give added range of vision. In some models, the visor is movable.

Other types of caps are made extra full and are of cloth which does not permit powder or dust from charcoal or other sources to seep through and require too frequent shampoos.

These caps, usually made to order, are of light or dark colored material, with company or supplier trade mark, and they can easily be cleaned and fire-proofed. Fire-proofing should be done after each washing, as the chemical used to render the cap fireproof is removed in the laundering. Where the fire hazard is extreme, a heavy woolen cap is used, since wool is in itself fire resistant to a high degree and can be made more so by chemical fire-proofing.

Eye Protection: Catalogues of safety equipment manufacturers and distributors show more than twenty types of goggles, for women as well as men. One war-production manufacturer with women in many kinds of work lists four types of "eye defenders" for them: dark-green cup-type goggles, for brazing and acetylene welding; clear lens, cup-type, with dust-proof baffles, for chipping, grinding, cutting, and abrasive buffing; dark, spectacle-type safety goggles, for brazers and those operating machines throwing ultra-violet light rays; standard spectacle-type, for general purpose wear, required of every one entering the shops.

Buyers and production men should realize that ordinary glasses cannot resist the impact of flying metal objects and are not effective against various industrial glares. Many companies have oculists prescribe appropriate safety lenses for employes whose vision needs

Girl war worker happy with five features of protecion: (1) large face and eye shield, (2) half-dome hair protector, (3) plastic type safety goggles, (4) short-sleeve jumper suit for jobs where little or no arm protection is required, and (5) new type leather glove open at the back for ventilation.

This natty uniform of shirt, slacks, and military cap, worn by a girl operating a broach in the International Harvester Company plant, is typical of the uniforms adopted in that organization. Besides promoting safety, such uniforms promote the buoyant fighting spirit.

correction, doing so either at company cost or at a low rate to the employe. Much eye protection, however, is afforded in devices for protecting fair faces.

Face Protection: Buyers for companies whose women war workers are exposed to flying particles, acids, or sparks should look into the possibilities of face protectors, such as the so-called "face shields". The common characteristic of these, besides the elastic browband and sweat-pad, is the transparent front of cellulose acetate. On some this front comes only down to the worker's lips. On others it comes down to the neck. On some it is attached to an adjustable circlet that affords some hair protection, on others to a half dome of fibre, and on still others to a full dome. These in some cases render goggles unnecessary. Furthermore the front can be adjusted to fit either close to the eyes or out from them, to allow the worker to wear ordinary glasses under the shield, also to have the benefit of ventilation.

Some kinds of work in which such face shields are used, either with or without goggles, are: grinding, acetylene welding, spot welding, babbiting, forging, pouring molten metals, pouring acids, degreasing, chrome plating, lighting oil burners, and inspecting heats.

Body Protection: Since skirts, flowing sleeves, belts, and outside jackets and pockets get caught in machinery, thus causing accidents, and since such garments afford little or no protection against the lubricant or the coolant that causes dermatitis, they are generally banned for women war workers. Ordinary clothing is left in lockers and uniforms are worn by "Uncle Sam's girls" in the war production shops. Through special studies by the personnel and safety departments of various war production companies, by the Women's Bureau of the Department of Labor, by Safety Councils, and by manufacturers and distributors of safety equipment, there has been a wartime boom in design, production, and use of uniforms for women war-production workers. This has been furthered by the way in which young and youngish, and in some cases oldish, women have taken to wearing slacks. Various companies not only require women to wear uniforms but supply them and take care of their cleaning at company expense.

Besides the military-style caps, these uniforms in many cases consist of tucked-in shirts, with short sleeves where arm-protection is not required, and trousers on the order of slacks, or bib overalls, or jumpers. In some cases coveralls are used. In a few plants the uniforms consist of dresses of prescribed cuts.

Then there are the adaptation of various types of work aprons. They range from the waist-type apron for use where exposure is slight to the full-length apron with gutter at the bottom, to catch liquid and prevent it from causing injury to legs and ankles, or saturating the lower extremities of work garments. Some of these aprons are made from a patented fabric the base of which is neoprene compound. This material is light, flexible and tough, and impervious to water, to oils, and to acids except the extremely strong solutions. Since it weighs one-third as much as rubber, women wear garments made of it enthusiastically; and since such material is available for industry where rubber is not, it is much sought by buyers for their plants. Ordinarily they get it in the form of made-to-order garments.

Hand Protection: Women's deft and dainty fingers are proving to be valuable factors in war production. With their fighting fingers women workers are making a win-the-war record for efficiency in repetitive operations on machines that cut steel, on assembly lines involving the picking up of parts, and in other industrial operations. Even more than with men, their hands, on account of the greater delicacy of skin, subject them to the hazard of dermatitis, that distressing inflammation

Continued on page 214

Woman war plant worker face and eye shield while operating a grinding machine, which is further protected by a sloping guard of safety glass. Note also the snood and work apron.

FIRST TIME AROUND

Unless the Controlled Material Plan sticks to the basic principles which can make vertical allocation a workable policy, the "first time around" may prove to be the last

By MYRON ZOBEL

THEY'RE OFF!

The C.M.P. Merry-Go-Round has started on its first time around with its Claimant Agencies, Industry Divisions, and Prime and Secondary Consumers all seated on their painted hobby-horses. The Ballyhoo man is out in front with a new line of patter, and the calliope is shrieking at the top of its pitch.

Now the carousel is gathering speed. Its frantic occupants are being jolted, bounced and rattled faster and faster. The quickening pace is dizzying. Look! Two of the smallest Secondary Consumers have fallen from their saddles.

Still the whirling behemoth grinds madly on. What is the purpose of this mad pursuit? Why are these riders falling over one another, risking life, and limb, and liberty? What are they reaching for?

The Calliope shrieks the answer: "They are reaching for the Brass ring."

Not just the brass ring; but the brass sheet and strip and rod as well. And the copper wire and tubing. And, the aluminum forging and the wrought iron and the steel tools.

Yes, American industry is off on the first lap of the race to win all these. And theoretically this is to be a handicap race, where the starting time of each contestant will be set according to his speed, and the load which each runner will bear will be in proportion to his weight.

That, at least, is the principle of the controlled materials plan. But not the way it is working out the first time around.

An Innocent Little Joker

An innocent little joker has caused a lot of laughs—and a lot of headaches. I refer to the provision which makes April, May and June, 1943, a tentative "change-over" period. This nifty little piece of legerdemain gives PRP a new lease on life until July 1, 1943, with the one hand and chokes it to death April 1 with the other. A neat little feat that is performed not with mirrors but by giving the new CMP 4A and B Allotment forms a standing that outshines the old PD-25A's.

I happen to know that this device was hit upon in perfect good faith, in the hope that it would give American industry a longer time to get its bills of materials together by allowing it to continue under PRP until the first of July. It has had, however, exactly the opposite effect. It has encouraged the Claimant Agencies to get all of their prime consumers to fill out allotment forms without, in more cases, bothering about bills of materials at all. It has encouraged a perfectly natural and healthy tendency on the part of all Claimant Agencies to get controlled materials while the getting was good.

I regret to report that some of the administrators of the controlled materials plan are encouraging and abetting this effort to put CMP into long pants before it is really out of its swaddling clothes.

I was actually told by one of these enthusiasts that there is no relationship between the application for allotments and the bills of materials. This is the sort of thinking that brought PRP to an untimely end. This is the complexion of mind which considers an AAA the answer to every scheduling problem. This type of administration will succeed in bringing out all of the evils of vertical allocation—such as rigidity of scheduling, over and under allocation, and a flood of subsequent allotment changes—instead of bringing out its good points which are a proper integration of parts, a correct balance of materials and a maximum of production from a minimum of supply.

Twenty Questions

This mad dash to get CMP under way by April 1 on everything by putting a bonus on fast and slipshod work has already had many sad and terrifying results. Estimates of material requirements had to be made during mid-December of 1942 by each of the Claimant Agencies. Bills of materials that had grown dusty with the years were dug out and used as "good-enough." Where no "bills of materials" at all were available—however antiquated—a guess at the requirements of controlled materials was made by sight, sound, touch, taste or smell. A stab at dividing these requirements, estimates, as they were laughingly referred to, between A and B products was done by dead-reckoning.

It sounded as though all Washington was playing the old game of "Twenty Questions." Every one seemed eager to know "Is it animal, mineral or vegetable?" All the amateur chefs were busily at work slipping A and B products into the pot. A sort of alphabet soup was the result.

And now all the cooks poured into this messy mixture two further ingredients. Some eggs (slightly bad) were separated, white from yolk, and beaten in. These were the Lead Time Factors, as they were quaintly termed. Lastly came the milk (slightly curdled). This was the estimated production schedule for the coming 18 months. Recipe: Stir well, cook till ready, serve hot.

The requirements committee cooks now have their aprons and their chef's caps on. The upside-down cake is a-baking. Mr. Eberstadt will cut the cake. He knows that we can't have our cake and eat it too.

Even the Administrator who could see no relationship between the bills of materials and the allotments, between what it takes to make one unit and what it takes to make a thousand, is worried now.

"It's going to be pretty sloppy going the first time around!" he said ruefully the last time I saw him.

"Aren't you afraid that the first time around will be the last time around, at this rate?" I asked him.

"Well," he sighed, "we've got to get started—quick!"

"Even if it's in the wrong direction?"

I broke off my remarks, convinced that the conversation, like CMP, might be starting up a blind alley.

The CMP Steeplechase

Having gotten the fourteen Claimant Agencies* off to a head start, on a muddy track, in the National CMP steeplechase sweepstakes, the next trick was to get the Prime Consumers mounted and away. Some of the Prime Consumers and a lot of the Secondary Consumers had never been on a horse before. They had, it is true, ridden the "PURP." But CMP was a horse of another color. It took a lot more equestrian ability to keep from falling off or being thrown.

So the WPB used the old but effective gag of tying a bunch of straw in front o fthe donkey's head to make him run. To be on the safe side, they also put blinders on him. Not to mention the blinders they put on themselves and the Claimant Agencies.

But at last they are off. And we are faced with the whole sorry spectacle of 100,000 or more Prime and Secondary Consumers racing like mad to fill out allotment form, (CMP 4A and B) before the Judgment Day.

Pity the tired marchers in the Paper Parade, their fingers numb from writing, typing, adding, multiplying and extending.

"How many of your employees are working on CMP?" I recently asked a plant manager.

" . . . . ." He answered and to my surprise continued to count on! "2-4-6-8 . . . ." He got to 40 before I could stop him!

"All hired for the work?" I asked him.

"Oh, no. We are taking them off the line. Tool makers, testers, engineers, ...everything we can lay our hands on."

"Is it cutting into production?"

"Well, what do you think!"

Running in Reverse

We seem to be running the first time around in reverse—from the finish line to the start. Even the forms, in many cases, are being filled out in reverse order. Form 4 (the allotment form) comes first, as might be expected of a form that is supposed to guarantee delivery of controlled materials.

Next comes Form 3, in which an attempt is made to segregate the sheep from the goats, the B products from the A.

Lastly come forms 2 to 1, the bills of materials, the foundation on which the rest of the superstructure was supposed to have been built.

"But how can they make out an allotment application without knowing the quantities of controlled materials contained in one unit?" I asked one of the Phi Betes who is supposed to know about such things.

Editor's note: When CMP was first announced, there were seven Claimant Agencies: War Department, Navy Department, Aircraft Scheduling Unit, Maritime Commission, Board of Economic Warfare, Office of Lend-Lease Administration, and Office of Civilian Supply. At the present writing, even before the "first time around", the list has been doubled, to include the Facilities Bureau, National Housing Administrator, Petroleum Administrator for War, Office of Food Administrator, Office of Defense Transportation, Office of Rubber Director, and Office of Power Director.

"Oh, they just estimate the junk (sic) they made in the last quarter of 1942 on a dollar basis and estimate their requirements for the second quarter of 1943 from that."

"But that is pure PRP," I rejoined. "I thought even B-1 products were going to be based on bills."

"Well, I guess it's the best we can do the first time around."

The reader may well wonder from the above whether CMP is not rapidly turning into just another PRP with a new set of initials, like a widow who tries to marry a man with the same last initial she had before so that table linen won't have to be re-embroidered.

The Law of Averages

Unfortunately, it is worse than a return to PRP. For the law of averages rides on the side of PRP, but it is CMP's sworn enemy. Let me illustrate.

The American Gimcrack Company manufactures one hundred different types, styles and sizes of gimcracks, all to be used in the war effort. Under PRP they lumped these all together, requesting the amount of material required in their previous quarter, and in line with their total production trend. Maybe they asked for a little more than they needed, to be on the safe side. Their processed PRP came back cut by 20%. But their production schedule was not cut. They were free to produce all of those different types of gimcracks to the full extent of their orders. And in view of that little leeway that they left themselves, plus a good share of Yankee ingenuity and four good expediters, they did build their full production schedule on what was authorized to them under PRP.

But with CMP it is different. The American Gimcrack Company is obliged to make out 100 different allotment forms (CMP 4A) as all of their products happen to be A products. As there is no time allowed them for the preparation of good bills of materials (they were told not to collect any bills of materials until instructed by their Claimant Agencies) they will fill out their allotment forms by the sense of touch. They are even authorized to guess at the requirements of their sub-contractors. That is, they may turn in their 100 allotment applications for the completed gimcracks without consulting a single sub-contractor. This step has resulted from the stress which the CMP plan now places upon speed rather than accuracy.

If the American Gimcrack Company is as smart as most American consumers, they will follow the same procedure they used under PRP and ask for plenty. They aren't even sure that CMP will offer anything equivalent to the PD-25F and maybe the first time around the controlled materials track will be the last time around for them.

When the hundred allotment forms arrive at the various Claimant Agencies, there will be a moment of shocked silence. For the allotment requests of the American Gimcrack Company, added to the hundreds of thousands of other allotment requests, pouring in from every Prime Consumer in the country, are almost certain to exceed the supply.

Cutting Reproduction in the Dark

Now, what will the Claimant Agencies do? They have no accurate bills of material so they cannot estimate whether the allotments are proper or improper. They have no accurate information on inventories on hand and even if they did have, they could not apply them against this particular allotment as the American Gimcrack Company are producing gimcracks for nearly all of the fourteen Claimant Agencies.

They are not permitted under the CMP regulations to cut a prime consumer's allotment without at the same time cutting the authorized production schedule.

Worse still, they do not even know how much to cut his production schedule, since it is difficult if not impossible for them to determine what proportion of the total allotment to Prime and Secondary Consumers is derived from inventories. Nor do they know the lead time or the unit requirements as these facts are not contained in the Allotment Form. They have no accurate bill of materials which would give them a true rule of thumb for cutting back and must, therefore, cut production in the dark.

So the Claimant Agencies send to the American Gimcrack Company, reduced allotments of materials, and what they hope are proportionately reduced authorized production schedules. The American Gimcrack Company finds that it has been hoist by its own petard, tarred with its own brush, and stewed in its own juices. Their nice contract from the Claimant Agencies, calling for a million assorted gimcracks, has been chopped down and whittled away until it now stands on their "authorized" production schedule at only 650,000 units. Worst of all, they might have built the entire million with the material allotted, as they later learned to their sorrow.

It is very important that this fundamental difference in vertical allocations (Class A products) and horizontal allocations (Class B products) be recognized and faced. Horizontal allocations, like PRP, cut material allotments but do not cut production. Vertical allocations, like CMP, cut both materials and production. *It is, therefore, essential that all "A" products be based on extremely accurate bills. For the alternative is cutting production down to a bad bill instead of up to a good one.*

Working CMP the Hard Way

As I have pointed out in a previous article in this magazine, it was the original principle of vertical allocation (of which the author was one of the first proponents) to limit vertical allocations to mass-produced items of a highly repetitive nature. Planes, tanks, trucks, and ordnance items, produced on the assembly line principle, were what the originators had in mind. The present extension of vertical allocations to include a myriad of other contracts, such as limited production contracts, items consuming minor quantities of controlled materials and products in the process of redesign, is, in the opinion of the writer, a misapplication of CMP.

An analysis of several thousand contracts in the field of army and navy radio proves that from a practical standpoint less than 2% of these items are suitable for vertical allocation as "A" products under CMP. And yet that handful of items consumes nearly half of all the controlled materials in the entire war radio program which runs into billions of dollars.

Fortunately, in spite of the excessive haste with which CMP has been launched, and in spite of the rigidity which the many forms and regulations have already given to the plan, it is still not too late to stop this mad rush of paper work. It is even possible to achieve all the objectives of the Controlled Materials Plan within the structure of the plan as it is now set up. Only one slight modification is needed. One small concession seems a mild request in the light of the 6,000 products which have already been reclassified as "B" and the continual shifting back and forth which is constantly going on.

We have already three classes of B products: WPB

Industry Division scheduled components are called B-1; commercial products are called B-2; and critical B products, scheduled by the Claimant Agencies, which might be called B-3.*

Working CMP the Easy Way

What the writer proposes is that A products also be split into two classes. These might be known as the A-1 (or rigid group) and the A-2 (or flexible group). The A group would continue to be governed by all of the regulations which now apply to A products; with the further provision that all procurement items in the A group which are re-rated as A-1 will require a detailed bill of materials. This A-1 group will thus comprise the assembly line mass-produced items previously referred to. It is the writer's opinion that such A-1 items, while few in number, will consume over 50% of all of the controlled materials. All the remaining A items, to be classified as A-2, would be covered by a summary or even a prototype bill of materials.

There could be a further relaxing of requirements on the A-2 procurement items. A Prime Consumer with contracts for two or more A-2 items, all being produced for the same Claimant Agency and carrying the same program number, would be permitted to use any excess allotment from one A-2 contract in completing the authorized production of another A-2 contract within the same Claimant Agency and group.

The advantages of this flexibility should be obvious. The Prime Consumer cannot exceed his total allotment of A-2 products within any program of any Claimant Agency. But at the same time he is given the benefit of the Law of Averages in estimating his requirements and in alloting his materials to his Secondary Consumers. And this latitude is achieved without increasing his material allotment *or cutting his production schedule.*

These interchangeable A-2 allotments must be limited to the Prime Consumer level, so that they can be easily controlled and audited by the Claimant Agencies. But they will represent an enormous easing of the Prime Consumer's burden and while covering less than one-quarter of all controlled materials, will cut paper work by 75% or more. Moreover, the assurance that these A-2 allotments are interchangeable within Claimant Agency programs will make production scheduling more flexible for both the Prime Consumer and his Secondary Consumers. It will result in the setting up of maximum rather than minimum authorized production levels. It will encourage the Prime Consumer to estimate his summary bills conservatively rather than recklessly, since his A-2 allotments will average out with every shortage on one contract covered by an average on another. As he will not suffer the cut schedules that rigid allotments entail, he will be rewarded for honest estimates by having his application speedily processed and his maximum production maintained.

Putting the Bees on Ice

The importance of this simple sub-division of A product must be fully understood to be appreciated. The original conception of the plan called for vertical allocation on everything—or nearly everything. It then became evident that horizontal allocation would have to be retained for certain types of commercial component—to be known as the "B" list. I will never forget the occasion—about two days before the CMP Plan was printed and released to industry—when my telephone rang and a frantic voice inquired:

"We are going to freeze the B list at 4:00 o'clock this afternoon. Please rush us a list of your recommendations of everything that should go on this list."

**Editor's note*: This is the exact sub-division of B products suggested by Mr. Zobel in a previous article in this magazine.

ZOBEL STICKS BY HIS GUNS

Mr. Zobel's articles on CMP are the expression of an individual who has been close to the plan since its inception and is sincerely concerned with making it work. To avoid any possible interpretation that these opinions may have been officially inspired, he resigned from his post in the Navy Department, February 15th, with the following statement:

"Entirely on my own responsibility and as a result of information which I feel to be in the public interest, I have written a series of articles covering the Controlled Material Plan.

"It has now been brought to my attention that the publication of these articles, while I am employed as a Special Consultant in the Bureau of Ships, may cause the wrong implications to be drawn by outsiders.

"I feel that I must be a free agent in this matter, able to speak my mind fully and clearly. I believe that a production plan such as CMP should be able to withstand honest suggestions and correct abuses which are at present resulting in the loss of millions of precious hours that might otherwise be directed toward war production.

"I have enjoyed working in the Navy and nothing would inspire me now to tender my resignation except the feeling that I have a job to do, which will serve the Navy as it will all other branches of the Armed Service. I feel under these circumstances that I can serve the Navy better from without than I can from within.

"I know that you will respect this decision on my part to stick by my guns."

★ ★ ★ ★

Mr. Zobel's article, "Paper Parade," which appeared in the January and February issues of PURCHASING, has been published in booklet form by Telecast Productions, 30 Rockefeller Plaza, New York, N. Y., and is available at $1 per copy, or 50 cents per copy in lots of ten or more. All proceeds are being donated to the Navy Relief Society.

"But that will take months of research by each of the thirty-two WPB Industry Divisions and will call for complete catalogues for every type of product!" I replied.

"Not the way we're doing it, it won't. The 'B' list will be frozen at 4:00 P. M. and that's that!"

That was three months ago and the "B" list is not frozen yet. What is worse, there is a constant shifting back and forth—between Commercial, Industrial and Agency classifications—with a tendency on the part of each of the three competitors to swing as many products as possible to their own group.

As Commercial "B" products are not included on bills of material while Claimant and Agency "B" products are, such summary bills as have been prepared will soon be valueless. It is absolutely essential that Industry Advisory Committees be called together promptly to help classify "B" products into B-1, B-2 and B-3—Industrial, Commercial or Agency—and that this catalogue when printed and distributed to the trade become each industry's official guide. No changes should be made in his list without further meeting with the Industry Advisory Committee, attended by as many representatives of industry as possible and by representatives of each of the Claimant Agencies. Changes, mutually agreed upon, should not become official until they have been printed and distributed to the trade It would be advisable for such changes in "B" classification to be made not more frequently than once every quarter, to take effect only with allotments for the following quarter. Here is a piece of freezing worth doing and they should be frozen good and solid so they will not melt in the Spring thaw.

Failure to take these obvious steps before "The First Time Around" has resulted in such a tugging and hauling at classifications and definitions under CMP, that it is doubtful whether any two bills of material for the same item will even include the exact same components. It is certainly sure that no two persons in Washington—however exalted their WPB titles may be—will give you the same answer to any question you may ask them about CMP. I have protested previously, and I wish to protest again, this tendency to wash CMP's dirty linen in public. It does not increase industry's respect for a plan under which they are supposed to already be operating when they see it changing right before their eyes.

Of particular seriousness is the continual switch of items between the "A" and "B" classifications. It is bad enough for a product classified as "B" to jump from one "B" group to another, but to classify, for example, coaxial or submarine cable as a "B" product and to discover as soon as your forms are mailed to Washington that it has jumped all the way from a "B" item to an "A" item, and from there on to a controlled material, is pretty disconcerting.

Horse-and-Buggy Minds

The cause of much of the confusion and buzzing about springs from the fact that CMP is being administered by men who created, supported and believed in the PRP system and who still think in terms of PRP CMP is based on mass production, on assembly line methods and on close scheduling. It is an outgrowth of the air age, and it requires the close tolerances of the plane and motor manufacturers—not the easy-going hand craftmanship of the carriage maker. It is not easy for these horse-and-buggy-minded administrators to think in terms of tight airplane and motor car production and scheduling.

As a result, there is a constant tendency to take the easy road—to allot materials without proper scheduling and without any bills of materials at all that is worthy of that name. This tendency to operate under PRP and call it CMP can have only one of two results: either a continual cutting down of production goals so that slipshod material requirement bills can be met, or a continual reclassification of products from "A" to "B"—from vertical to horizontal. So unless we are going to fill a five-foot shelf of books with "B" products, we will have to loosen up on the products which remain classified in "A".

The sub-division of "A" products as proposed by the writer into the A-1 rigid group, covered by detailed bills of material, permits flowing of controlled materials to the A-1 group under vertical allocation at its best. It also "saves face" for CMP as it is now set up by permitting the A-2 classification to be applied to all the thousands of other A products which are now being serviced with sloppy bills of material, prototype bills of material or no bills of material at all. It permits the Claimant Agency to put all of their contracts and all of their procurement items under CMP without the necessity of placing an undue burden of paper work on their contractors. It keeps the budget of each material and each shape, size and form of each Claimant Agency in perfect balance, for no single consumer is permitted to exceed the total allotment of any shape of any material on any group or contract which he makes under one program for one Claimant Agency. It gives the blessing and balance of vertical material flow without the curses and curtailment of inflated paper work and inaccurate estimates.

Here is a simplification of CMP that will work and one that is in line with its original principles, and with the practical necessities of small contract production. For it is not in Washington that simplifications are needed. It is the Prime and Sub-Consumer who need to have their paper work made lighter and their authority made heavier.

Washington Jargon

CMP in its present form lays entirely too much stress on "policing" the consumers. It has too many "compliance" codes, and too many references to "fines and imprisonments" hanging over their heads.

Inventory Control, for example, would be of far less interest to CMP administrators if they could forget for a moment their bitter experiences under PRP and really learn to believe in their principles of the CMP plan which they are trying to administer.

For swollen inventories, like hoards of sugar, coffee, or other rationed goods, result from the fear of scarcity. If the administrators of CMP really believe that a *correct* allotment of controlled materials would accompany each contract, there would be very small reason for worrying about swollen inventory. The jargon one hears in the halls of the WPB about "screening" applications, and "cutting-back" allotments and "dehydrating" requirements are the administrators' quaint way of confessing to themselves that they honestly don't think the CMP plan will work the way they are trying to work it.

And they are apt to be right if they continue to bury their heads in the sand and kid themselves into thinking that allotments and bills of material have nothing in common.

Several movements toward simplification are already on foot with regard to CMP. A change of the allotment period from a monthly to a quarterly period has

already been announced. There is also a group who favor reducing the program code from four digits to two, thus limiting the total of each Claimant Agency's program to ninety-nine. Some of the extremists even talk of cutting out the authorized schedule code completely.

Let us consider these three proposals, one by one.

Exceptions Prove the Rule

The decision to make allotments on a quarterly rather than a monthly basis sounds good, provided the CMP revised regulations don't get so snarled up with exceptions and qualifications and other legal "ifs, ands and buts" that the consumers, the mills and the Controlled Materials Division and the Agencies are worse off than before. This is an example of one of those decisions which cannot intelligently be made except in the light of experience. To launch or even announce such a fundamental change in the plan at this time will only cause further confusion. These are the sort of ideas which Washington planners seem to conceive by the process of explosion rather than evolution.

The other proposal to reduce Claimant Agency programs from a possible total of nearly 10,000 to a maximum total of less than 100, may simplify the record keeping of the War Production Board and the Claimant Agency. But what will it do for the poor bedeviled consumers who need help worst of all. It will do nothing at all for them unless and until the A-2 classification is created, and then it will give much greater flexibility to their operation because those A-2 allotments will be inter-changeable within agency programs, and the less programs there are, the more interchangeable they will be.

The final proposal to eliminate authorized schedule codes is amusing after all the talk there has been about "policing and compliance." Either the planners have not thought this one through or they are getting ready to jettison all policing and throw compliance overboard. For the only checks they now have in Washington on whether or not a Prime Consumer's allotment was exceeded are the reports from the mills. These reports show in the following order: Claimant Agency symbol, Program code, Authorized schedule and, lastly, monthly delivery code.

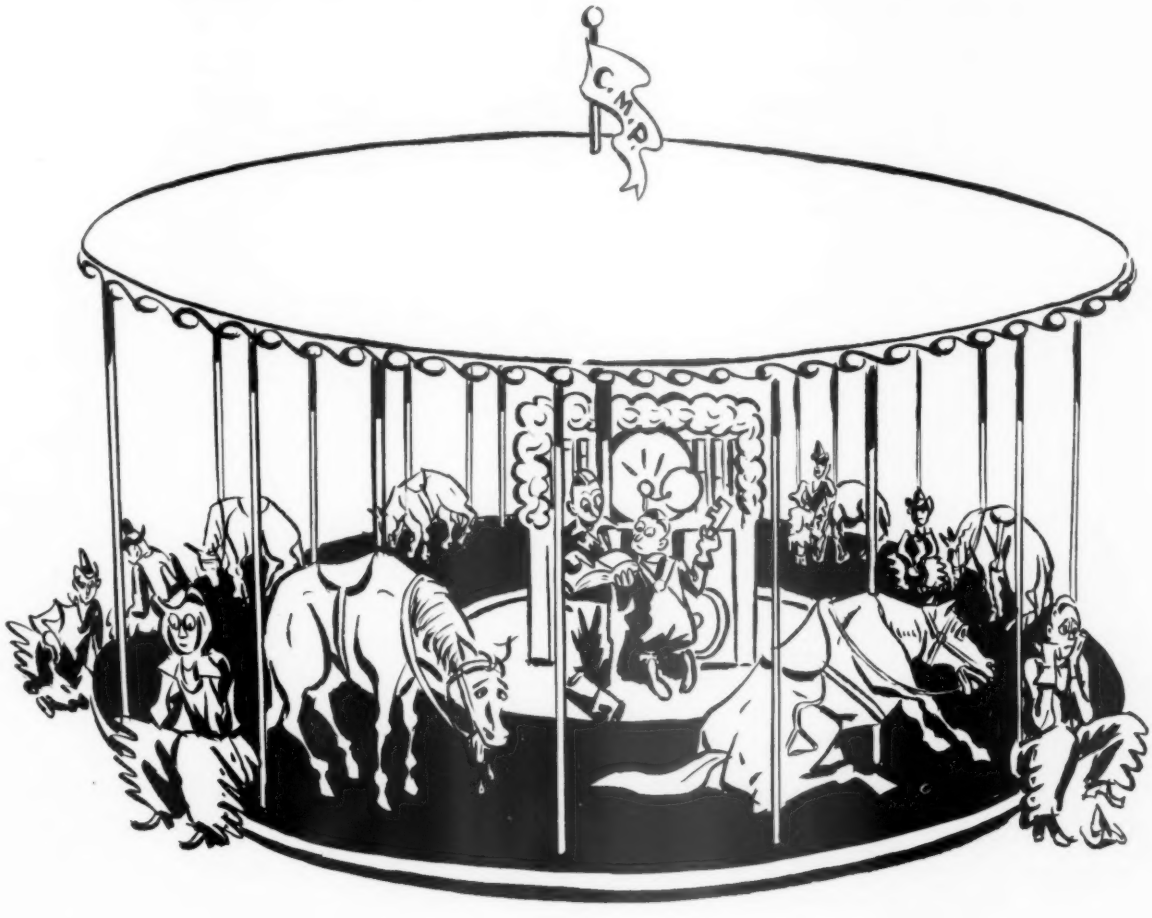
Take the light tank program as an example. One of these tank models is built by seven separate Prime Consumers. If the authorized schedule code is removed, Washington will never know whether one or all of the seven Prime Consumers exceeded his allotment, or which of the seven to send to jail.

I predict that simplification in CMP will be made, and I hope that interchangeable A-2 allotments by a Prime Consumer within agency programs is one of the first of them. I hope that industry-dictated "B" lists are promptly printed and frozen. The lists as published November 14 and December 21 are badly catalogued, incomplete, frequently incoherent and highly unstable.

While I am wishing, I might as well wish to see the whole family of "six" forms done away with; the 6S-1's, the 6A-1's, and the 6C-1's and all the little cousins, such as the 6S-2's and 3's, etc. Surely an allotment can be extended to controlled materials on the consumer's regular purchase order form, using a rubber stamp indorsement if necessary, without making triplicate copies for each material and each allotment number.

For the number of forms under CMP is growing apace. Already it has reached a dozen and no doubt will soon reach thirty-six.

The Paper Parade is definitely on the march!



LESSONS from LEGAL EXPERIENCE

Court decisions in previous litigations provide a practical guide to the interpretation of contract law for the Purchasing Agent

By LEO T. PARKER

IF all Purchasing Agents were familiar with all previously decided higher court cases involving contracts of sale and governed their actions accordingly, there is little doubt but that purchasers would win favorable verdicts in all, or almost all, legal controversies which might arise.

Obviously, this assumption is impossible of accomplishment. But certainly it is true that the more modern higher court cases with which Purchasing Agents become familar, the greater their chances are of winning a great majority of unavoidable suits.

Therefore, in this article we shall review higher court litigations involving contracts of sale, decided in 1942, in which purchasers received favorable verdicts. And we shall endeavor to explain the reasons these various purchasers were successful litigants, whereby readers may be correctly guided in future transactions.

Salesman Changes Contract

If a salesman is expressly or impliedly authorized to make valid contracts, without approval of his employer, contracts made by the salesman are valid and effective.

The salesman is *expressly* authorized to make valid contracts if his employer has notified the purchaser of this fact. The salesman is *impliedly* authorized to make valid contracts if in the past the seller has customarily accepted, as valid, contracts made by the salesman. And, moreover, our modern higher courts hold that the *printed* conditions of a contract of sale are *secondary* to a typewritten clause, and, further, a *hand written* clause is superior to both the printed and typewritten clauses.

For example, in Belt Company v. Mitchelhill Company, 153 S.W. (2d) 106, reported August, 1942, it was disclosed that a seller's salesman took an order for merchandise on the regular printed order form. However, the salesman *wrote* upon the printed order some additional specifications, requirements, and a warranty of the goods.

Later controversy arose between the buyer and the seller. The important question presented the court was: When a printed order form specifies the exact legal relations between a buyer and seller, what effect does a hand written caluse inserted by a salesman have on

the printed obligations?

It is important to know that the higher court held the contract is valid if the salesman was expressly or impliedly authorized to make contracts of sale. This court also held that where a contract is partly printed and partly hand written, as in the above mentioned printed form, and there is conflict between the printing and the writing, *the legal effect and meaning of the writing will prevail.*

In other words, if the writing in any way, manner or form conflicts with the printed matter, the latter is void and the written matter always will be effective and controlling. In other words, hand writing will prevail over typewriting, and typewriting over printing.

Therefore, it is quite apparent that where there is confliction or contradiction between the provisions in printed, typewritten and hand written parts of a contract of sale, the courts will rely, first, upon the hand written clauses, second, upon the typewritten parts, and last upon the printed conditions.

Ratification of Contract

It is well settled law that if a salesman exceeds his authority in making a contract his employer may accept the terms thus rendering the agreement valid. However, the courts will permit a seller to ratify a part of his salesman's dealings and repudiate other parts of the same transaction.

For example, in Moret v. Poulos, 17 S.E. (2d) 599, reported January, 1942, it was shown that a seller brought suit against a purchaser to recover the purchase price of merchandise. The testimony proved that the merchandise was ordered by the Purchasing Agent who was in charge of and operated a store for the purchaser.

During the trial, testimony proved that the Purchasing Agent made arrangements with the seller's salesman to deliver the goods to a person, named White, in a hotel. However, when the goods arrived, White could not be located and the salesman left the merchandise with an attendant at the hotel, but White never received it. Therefore, the higher court held the purchaser not liable for payment of the merchandise.

The reason the purchaser was not liable is because the higher court held that the salesman was authorized by the seller to make a valid contract, and, therefore, he had the *implied* authority to follow the Purchasing Agent's instructions to whom the goods were to be delivered. In other words, the salesman failed to follow the Purchasing Agent's instructions to deliver the goods to White at the hotel and the merchandise was lost, through fault of the salesman.

The salesman's employer argued without effect that he was not liable because he had authorized his salesman to sell goods, but that he had not given him authority to deliver such goods.

Label Incorrect

It is important to know that no person, firm, or corporation is liable on a guarantee of the quality of merchandise unless the testimony proves either of these three facts, as follows: First, that the seller absolutely guaranteed that the merchandise would produce definite results, or second, that the court "implied" a warranty, or third, that the label on the goods was erroneous, and that the purchaser suffered financial losses.

For illustration, in Sokoloski v. Splann, 40 N.E. (2d) 874, reported April, 1942, it was disclosed that a purchaser bought "field" corn. The testimony showed that the seed bag had attached thereto a tag on the face of which was the following statement: "Field Corn. F. H. Woodruff & Son, Inc. give no warranty, express or implied, as to description, quality, productiveness or any other matter . . . "

Later it was discovered that the seed was "ensilage" corn instead of "field" corn. The purchaser suffered financial loss and sued the seller to recover damages.

Although the label contained a notification that the seller would assume no responsibility and would not be liable on a guarantee, the higher court held the purchaser entitled to a recovery, because the label incorrectly described the contents of the bag.

Service Guaranteed

Purchasers often become involved in litigations over service on appliances and equipment. Therefore, we shall briefly review the law on this subject.

Modern higher courts hold that where a seller fails to carry out an agreement to keep an appliance in repair, and he guarantees that he, *personally*, will keep the apparatus in repair, the purchaser is entitled to rescind the contract, and recover back the purchase price.

See May, 159 Md. 605. In this case, the seller sold and guaranteed an appliance. The seller *agreed to keep it in repair for a year*, but he failed to do so.

The court held that the buyer could either have the device serviced or repaired for one year at the seller's expense and deduct this expense from the contract price, or he could sue the seller and recover back the purchase money which had been paid.

In this case the court explained that where a seller *personally* guarantees to keep an appliance in repair for a stated period, and fails to do so, the purchaser is entit ed to rescind the contract and recover the full purchase price and the seller must take back the appliance.

For comparison, see Welkner v. Di Carlo, 27 A. (2d) 351, reported July, 1942. In this case the contract provided that the appliance had been "*completely reconditioned, service guaranteed one year free.*" There was no guarantee of the quality except that it was "completely reconditioned" and the service was "guaranteed" for one year.

After the purchaser had the appliance for several weeks he discovered that it was defective and needed repairs. The seller refusd to repair it and the purchaser filed suit.

It is interesting to observe that the higher court held that the purchaser was obligated to pay the full purchase price for the apparatus, but that he could deduct from the contract price the total expenses incurred in making *needed* repairs. The court said that where a seller does *not* guarantee that he *personally* will make the repairs, the purchaser must make the repairs and the seller must pay the repair bills.

War Affects Parties

It is important to know that if parties to a sale contract do not enter into a valid contract or agreement to arbitrate a controversy neither party may be compelled to arbitrate.

For example, in Tanenbaum Company v. Schlanger, 40 N.E. (2d) 225, reported March, 1942, it was shown that during a period beginning on April 10 and ending on June 7, 1940, a company on twenty-seven occasions sold and delivered a quantity of merchandise to a purchaser. However, subsequently a controversy arose between them and the seller demanded that it be settled by arbitration. The purchaser commenced a suit in the Supreme Court for an adjudication of their dif-

ferences, on the contention that he had not contracted to arbitrate.

During the trial, evidence was presented proving that the dealings between the buyer and seller were entirely oral, but that the invoices given by the seller to the buyer contained printed statements that all controversies were to be settled by arbitration. The seller contended that, under these circumstances, the buyer was obligated to arbitrate.

It is interesting to observe that the higher court held that neither the buyer nor seller was obligated to arbitrate.

On the other hand, persons who sign contracts which contain arbitration clauses may be obligated to arbitrate the controversy notwithstanding the fact that the attention of one, who does not later want to arbitrate, was *not* directed to the arbitration clause. And, again, arbitration never is required where the present war conditions render fulfillment of a contract void.

For example, in Federated, 37 N.Y.S. (2d) 466, reported November, 1942, it was disclosed that a buyer and a seller entered into a contract sale for the specified quantity of merchandise. The contract contained an arbitration clause. When the seller offered to deliver the merchandise the purchaser refused to accept delivery on the excuse that in view of his over-stocked inventory acceptance of the merchandise would violate the priority regulations of the War Production Board. The seller demanded that the controversy be submitted to arbitration. The purchaser argued that he did not have to arbitrate because he did not know that the contract contained an arbitration clause and, further, that acceptance of the merchandise would result in his stock being greater than permitted by law.

Contracts of sale may embody valid and enforceable stipulations regarding warranties of quality, methods of delivery, and servicing of equipment, all of which are vital to the legal completion of the contract.

The higher court clearly explained that although a person to a sale contract *does not know* it contains an arbitration clause, or that his *attention* was not directed to it, does relieve the complaining party from the assumed obligation to submit the controversy to arbitration.

The court, also, held that a contract is void where delivery of the specified merchandise will violate the Federal priority regulations.

Law of Priorities

It is important to know that the higher courts will not always excuse a seller who fails to complete a valid contract of sale, on the excuse that the purchaser who enters complaint has no priority rating.

For example, in James Pels Company v. Republic Corporation, 31 N.Y.S. (2d) 857, reported February, 1942, it was shown that when the specified dates for delivery of purchased merchandise arrived the seller did not fill the orders because the purchaser had no priority rating and that his stock was depleted from filling orders received from purchasers who had priority ratings.

The higher court laid down modern law that the excuse will not relieve a seller that all merchandise owned, held, or controlled by the seller, or obtainable from the usual sources of supply, had been allocated to orders entitled to preference for national defense purposes.

Therefore, a seller cannot avoid liability for failure to complete a contract of sale by merely explaining that its stock was taken by firms who demanded immediate delivery and who had superior priority ratings.

In order that a seller may avoid liability for failure to complete and fulfill a sale contract he must *prove* that he faithfully and honestly endeavored to obtain the merchandise from sources *other than his usual sources* and that he could *not* obtain the merchandise.

Seller Substitutes

Notwithstanding unusual war conditions a seller must complete a contract if he can do so without violating valid laws or regulations.

For illustration, in Globe Crayon Company v. Manufacutrers Chemical Company, 31 N.Y.S (2d) 691, reported January, 1942, it was shown that a seller agreed to supply a purchaser with a stipulated quantity of stearic acid at an agreed price. However, the seller failed to complete the contract because it appeared that stearic acid was not at this time readily available. The purchaser went into the open market and purchased a substitute, although later testimony proved that stearic acid was available. The purchaser sued the seller for damages amounting to his actual and provable loss which resulted from use of the substitute. The higher court held the purchaser entitled to a recovery of full damages.

A modern higher court very recently held that where a seller guarantees the quality of merchandise to an intermediate dealer, as a wholesaler, and the latter resells the merchandise with the same quarantee, the wholesaler may sue and recover damages from the original seller if the guarantee is not fulfilled.

For example, in Robert A. Reichar, Inc. v. Ezl. Dunwoody Company, 45 F. Supp. 153, reported August, 1942, it was shown that a wholesaler bought merchandise from an importer under a warranty by the importer respecting the quality o fthe goods and resold the merchandise under a similar warranty to his customer. This customer sued the wholesaler and recovered damages. This customer alleged and proved breach of the guarantee given by the wholesaler. The latter then sued the importer to recover the amount of damages he had been caused to pay as a result of the false guarantee made by the importer. It is important to know that the higher court laid down the law, as follows:

"Where a vendee (purchaser) resells goods with a warranty similar to that made by his vendor (seller) and the vendee (purchaser) is subjected to a suit by the subvendee for breach of that warranty, the vendee is entitled to be restored to the position he would be in if the vendor had not defaulted in the guarantee."

In other words, any and all sellers are responsible to purchasers who suffer financial losses resulting from the seller's breach or violation of a guarantee given to the purchaser, although the latter sells the goods to another.

Liable for Actual Losses

It is well established law that a purchaser who breaches a contract of sale is liable for the actual damages suffered by the seller, notwithstanding contrary contentions.

For example, in Riedt v. Winters Company, 128 Pac. (2d) 1008, reported August, 1942, it was disclosed that a buyer and a seller entered into a contract of sale by the terms of which the seller agreed to supply specified drugs at a stipulated price. When the date for delivery of the merchandise arrived the purchaser refused to accept delivery.

The seller, after failing to make delivery to the purchaser, offered the goods for sale to other prospective purchasers at the highest price obtainable. Due to present conditions the seller was compelled to accept $535 less than the price at which the property had been originally sold to the purchaser. The seller sued the purchaser to recover $535, the actual losses sustained. The company admitted the execution of the contract and their refusal to accept and pay for the merchandise bought under the contract. The jury considered all testimony and held the purchaser liable for only $50, although it appeared that the seller had suffered losses of $535. It is interesting to observe that the higher court in reviewing this case said:

"The evidence is devoid of any evidence competent or otherwise which would justify the finding that plaintiff's (seller) damage was the sum of $50. . . . The jury by its verdict having resolved all of the controverted issues in favor of the plaintiff (purchaser) could not arbitrarily limit his recovery but were obliged to assess it in accordance with the measure of damages given them by the court in its instructions."

In other words, this higher court held that where either a buyer or a seller proves that the other party breached a contract of sale, the jury is bound to allow an amount in damages *equal* to the actual financial losses sustained by the party who was willing to fulfill the terms of the contract.

As above explained, with respect to a seller who offers to deliver merchandise in accordance with the terms of a sale contract, the purchaser who refuses to accept delivery is liable for the full and actual losses sustained by the seller. And a verdict rendered by a jury contrary to this principle of law is void.

Duty of Jury

Very frequently contracts for sale of merchandise are not clear with respect to the obligation of the seller. Under these circumstances the jury must endeavor to interpret the true meaning of the contracting parties, by referring to all relevant testimony.

For example, in Sarnia Steamships v. Continental Grain Company, 125 F. (2d) 362, reported April, 1942, it was disclosed that a buyer and a seller of merchandise entered into a contract whose various terms and clauses were not clearly stated.

It is interesting to observe that this higher court laid down the law, in plain language, that when deciding a legal controversy of this nature the jury is required to interpret the *ambiguous* language of a contract and when doing so it must carefully consider all evidence which will tend to enlighten it concerning the conditions, surroundings, and purposes of the contracting parties.

Furthermore, this higher court said that a verdict rendered by a jury is void if it fails to consider the exact legal relations of the contracting parties and the *intended purposes* of the contracting parties when they entered into the contract. The court said that the jury cannot add to or eliminate any language or in any manner vary the terms or change any clear meaning of the words used by the contracting parties in the contract.

This means, of course, that if a jury renders a verdict unfavorable to the purchaser, the latter may appeal to the higher court if the jury rendered its decisions in disregard to these various legal rules.

ESTABLISHES NATIONAL PURCHASING PATTERN

Fifty Proposals Elicit Twenty Bids — Forty Percent Saving Against Former — Results Win Approval of Government Requiremnts Bureau, War Production

By H. E. GEORGE

When R. M. Brennan, Purchasing Officer for the District of Columbia, Washington, D. C., recently sought a source of supply for several thousand chairs, desks and movable tables for Washington's public schools, his objectives were twofold: The first aim was to procure equipment that did not entail the use of critical war materials, yet would meet high quality requirements of the Board of Education. Mr. Jere J. Crane, Assistant Superintendent in Charge of Business Affairs, Board of Education, modified previous specifications to provide for equipment of all-wood construction. Also, there was concern about getting the pupil's furniture in ample time to permit the opening of new schools on schedule.

Obviously, Mr. Brennan did not have in mind the matter of evolving new standards in school seating and school desks for national use, nor did he feel that the estimated budget for the equipment was much out of line.

Yet these two factors emerge from this purchase in the form of end-results of far flung importance for they pave the way for Governmental procurement of seats and desks at substantial savings for the hundreds of schools being built or equipped under the nation's war program to provide for the children of war-workers.

And it is of interest that these end results were not born of a huge sum of money. In fact, the estimate for the chairs, desks and tables wanted was but $35,000 —an infinitesimal fraction of the astronomical appropriations that daily emanate from Washington.

In seeking bids for the equipment, Mr. Brennan took the position that the list of manufacturers to whom invitations to bid were to be sent should include companies that had been deprived of their metal supply by the war. Accordingly proposals were sent to a list of fifty manufacturers East of the Mississippi River, as the department was fearful that it would have difficulty in finding a manufacturer who would be in position to make reasonably prompt shipment after getting the order, and so it blanketed the field of leading manufacturers.

Twenty bids were received and therein lay another surprise for the Purchasing Department and others con-

Continued on page 220

CONTROLLING THOSE

A simple adaptation of the Gantt control chart for the purchasing department in keeping track of delivery requirements and performance.

By GEORGE KENDE
Purchasing Agent, Amitas, Ltd.

IN the good old days of the "Free Trade vs. Protective Tariffs" controversy the saying was going around that an abundance of merchandise turns a robber into a merchant whereas a shortage turns a merchant into a robber. With the advent of the CMP we must be extra careful when and how much of the sparingly allotted CMP material comes in against our purchase orders.

The "Gantt Chart" so widely used in production planning and other manufacturing operations offers a welcome method of controlling shipments and delivery times against purchase schedules. CMP regulation No. 1 issued by the WPB on January 12, 1943 contains "Schedule III" indicating how much time delivery orders may be placed in advance of receiving allotments. This time is expressed in the "number of days in advance of the first day of month in which shipment is

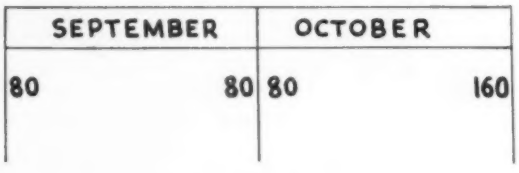


Figure 1

required". We also have to consider the "lead factor", that is the time between shipment of raw materials from the producing mills to delivery of the finished product to the ultimate buyer, in other words, the time period of the production cycle.

Before describing the suggested method, a few words of the working of the Gantt Chart may not be amiss. The Gantt chart enables a comparison of scheduled vs. actual performance by the simple graphical representation of drawing straight lines. The unit of comparison is a time period, e.g., a month. The chart will then show us on the one hand how much material we expected in that month and—cumulatively, along with previous periods — by the end of that month, on the other hand it will indicate how much material was actually delivered or received, both in that month and cumulatively by the end of the month. The comparison

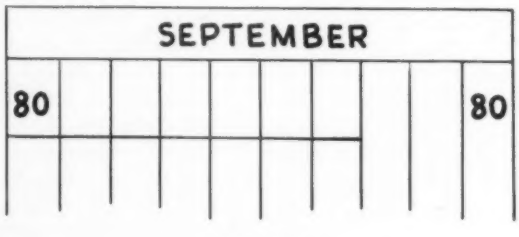


Figure 2

of "Schedule vs. Actual" can be made any minute, within any time period and the lag or lead of actual performance vs. schedule ascertained at a glance.

The purpose of such a record is of course to act as a visible reminder for us to expedite delivery, change schedules or take any other appropriate steps instead of detecting failures only in behindhand, hereby inviting the ire of our own production department for not meeting procurement schedules.

In our case the Gantt chart is intended to show the progress of every single purchase order. Each chart is capable of showing this progress in a condensed form for a great number of orders, in fact as many as there is space (lines) on the sheet of paper used. If an order

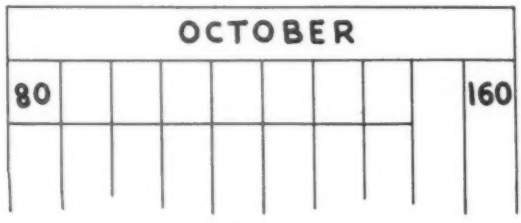


Figure 3

is composed of various items, each item must have a separate line to show schedules and deliveries of that particular item.

The nature of the business or the requirements of record keeping under the CMP or other regulations will determine how we group the purchase orders on the Gantt chart. They may be grouped by consecutive order numbers, by department, by "product — subassembly — part" breakdown or, most conveniently, by the kind of material. This again can be broken down to types, sizes or — to tie in with similar classifications used in inventory control. In connection with CMP it is suggested to group the orders according to the numbers in the CMP Materials Code. These code numbers for controlled materials were shown for the first time in the bulletin "CMP — General Instruction on Bills of Materials" released by the WPB on November 14, 1942. For instance, the CMP Materials Code Numbers for Carbon Steel are as follows:

2001 Bars, colled finished
2005 Bars, hot rolled (also concrete reinforcing bars)
2016 Pipe
2021 Plates
2026 Rails
2031 Sheets and Strip
2036 Steel Castings
2041 Structural Shapes

"CONTROLLED MATERIALS"

2046 Tin and Terne Plate
2051 Tubing
2056 Wheels and Axles
2061 Wire Products

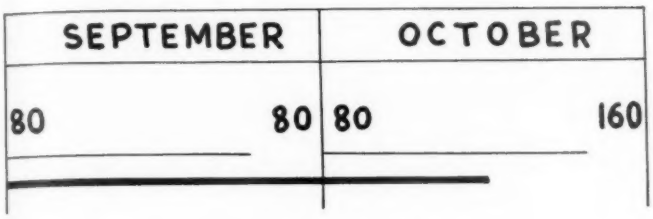


Figure 4

On the left hand side of our Gantt Chart we have then the following vertical columns:

Allotment Number, e.g., P-1615-392-19, where P stands for Claimant Agency (in this case the Petroleum Administration for War), 1615 is the program number, 392 is the schedule number and 19 is the allotment date expressed in the number of months starting with January 1942. In this case the date is July 1943 because that is the 19th month, if January 1942 is the first one.

Our Order Number. Under CMP the actual purchase order is called a delivery order". Incidentally "a delivery order for any controlled material — other than steel casting — placed with a controlled materials producer shall be accompanied by three copies of form CMP-6."

Date Order Placed. This entry in the chart has a triple importance under CMP, in connection with actual delivery, i.e.:

a) "orders bearing allotment numbers shall be accepted and scheduled for delivery in the order in which they are received".

b) As mentioned above, schedule III of CMP Regulation No. 1 indicates how many days ahead of expected delivery date may the order be placed. Suppose we have to order Cold Rolled Steel Bars, SAE 1112, ½" round, in random lengths of 18 to 22 ft. required by the end of October, 1943. According to Schedule III Cold Finished Carbon Steel Bars in standard sizes, grades and sections may be ordered 70 days in advance of first day of month in which shipment is required. That means 70 days ahead of October 1st, 1943, i.e. July 22, 1943.

c) "Since acceptance of an order implies acceptance of the specified delivery date, deliveries will be adjusted to requested delivery dates on the orders as accepted".

Item Number, if an order is composed of more than one item.

Short Description of Material. In our case: SAE 112, ½" rd., 18-22' r/1.

Unit of Quantity. Suppose we need 320,000 lbs. The quantities shall be reduced to their largest practicable multiples, f.i., by omitting 000's or using tons instead of pounds. This saves space for the digits on the right hand side of the chart.

This right hand side of the chart will contain the comparative figures in the following manner.

The scheduled quantity is shown at the left of the monthly column, the cumulative total at the right of the same column. Suppose the delivery promise is 80 tons in September and another 80 tons in October. The monthly columns will then appear as shown in Figure 1.

Actual deliveries are entered — by a straight line — as a percentage of schedule. Therefore, the monthly

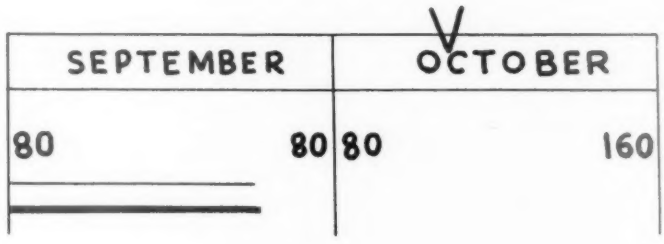


Figure 5

columns are divided for convenience into ten equal sections, each representing 10%. Suppose in September we received only 55.8 tons, that is roughly 70% of the delivery promise. The entry will be a straight line through seven sections in that monthly column, each meaning 10%, as indicated in Figure 2.

Suppose in October we receive 63.8 tons, around 80%. This entry will appear as in Figure 3.

So far we have shown deliveries against monthly quotas. Now what about cumulative figures? These

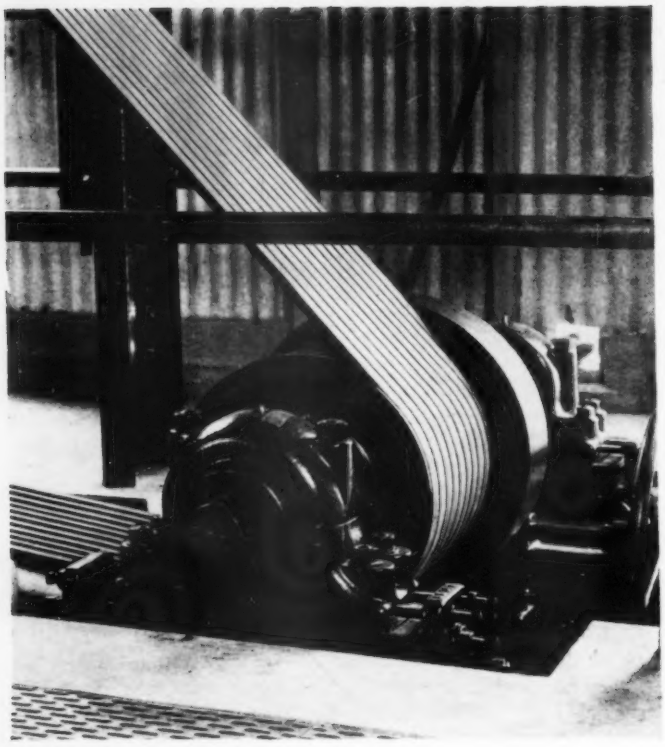
Continued on page 222

Figure 6

CARBON STEEL - BARS - COLD FINISHED CMP #2001

ALLOTMENT NUMBER	ORDER #	ORDER DATE	ORDER ITEM	DESCRIPTION	UNIT	PROGRESS SEPTEMBER	PROGRESS OCTOBER
P1615-392-19	2816	7/22/43	1	SAE 1112, ½" rd, 18/22' r/1	TON	80 80	80 160

(12 SUCH VERTICAL COLUMNS TAKE CARE OF WHOLE YEAR)



How to make BELT DRIVES L

Hard-worked belt-driven machinery in continuous service demands close attention to the purchase and care of belting

By J. R. HOPKINS
Chicago Belting Company

PURCHASING departments can protect their plants against 97% of all belt trouble by insisting on a complete requisition, and by purchasing up to the full requirements of use. The requisition should be very clear on two points:

1. That the drive has enough belt or belts to handle either the maximum peak load of the driven machine or the maximum starting torque of the motor. For example, a 5 hp. motor may have a starting torque of 250%, in which case belts for a 12½ hp. job are indicated. On a machine at 5 hp. running load but a maximum peak load of 25 hp. indicates the need for a belt or belts for that 25 hp. If the motor was purchased to handle any maximum peak load the machine has, the governing consideration is to buy a belt drive capable of handling anything the motor can deliver; then you are in the clear.

2. That the small pulley or sheave of any drive is not smaller than the motor manufacturer's *standard* pulley diameter. Motor manufacturers customarily list minimum pulley diameters and standard pulley diameters for all motors. As a rule the minimum pulley diameter has no overload capacity to speak of, consequently it should be avoided in favor of the manufacturer's standard.

If these two items could be checked for every belt or set of belts purchased, nearly all belt trouble would be eliminated at the source. The cardinal laws of good engineering say that you must first provide enough belt, and secondly, you must not run belts over pulleys too small for the belt thickness or too small for the best work from the motor.

The same factors should be observed in purchasing, when you ask for a drive to do a certain job and the seller specifies the drives. All too often, "engineering" is used as a means of price cutting—a narrower flat belt, or a V-belt with fewer strands, or smaller diameter pulleys or sheaves. The drive safety factor is used to secure a lower quotation. To buy an inadequate drive may show a lower first cost, but you are buying trouble—guaranteed trouble or short belt life.

In regard to belts, overbuying is nearly always good buying, for the higher initial cost is more than offset by better performance, longer and more satisfactory belt life.

In buying machinery that comes complete with the drive, the machine manufacturer's recommendation should not be accepted without checking the requirements of the drive. Machine designers are primarily interested in the machine itself and concentrate their attention upon it; there have been cases where enough power has not been provided, simply because of oversight in respect to this important detail. The manufacturer is probably right, but he may not be.

On short center motor drives, don't be alarmed if you have to use flat leather belting with pivoted motor bases instead of V-belts. The pivoted motor flat belt drive is working out very successfully on more than 250,000 of the hardest drives in industry, and has set a fine record for efficiency, long belt life, and reduction in drive maintenance. It is also true that the pivoted motor base, which is an automatic belt tightening device, makes multiple V-belt drives perform better and often doubles the life of the belt.

Here are four laws governing how to make leather belts last longer and eight short laws—or rules—that govern best service from V-belts. As the purchasing department frequently is more important in belt drive specification than is the shop—they should know these simple laws by heart. Written originally for shop men,

TABLE I

	SINGLE PLY		DOUBLE PLY			TRIPLE PLY	
	Med.	Heavy	Light	Med.	Heavy	Med.	Heavy
	These are the minimum recommended pulley diameters for the above thickness belts						
Belts Under 8" Wide	3"	5"	6"	8"	12"		
Belts 8" and Wider			8"	10"	14"	24"	30"

ES LAST LONGER

they are equally good for purchasing departments.

All belt or drive requisitions should be passed on by some technical man who can check to be sure you have the right size for the job and that you don't break any motor manufacturer's laws as to the small pulley. If that is not done, on the shop requisition there should appear enough data so the checking can be done in the purchasing department. This data should include motor make and frame no., nameplate h.p. of motor, maximum pull out torque of motor, estimated maximum load of driven machine and name of driven machine.

TABLE II

The National Electric Manufacturers' Association (NEMA) lists Standard Pulley sizes which are the smallest diameters that should be used with their motors for all-around good results. So the first step toward getting a good drive is to select a driving pulley large enough for its job. Motor Manufacturer's "Standard" pulley diameters for different motor speeds and horsepowers.

Frame No.	3600 RPM	1800 RPM	1200 RPM	900 RPM	720 RPM	600 RPM	Standard Pulley		
							Dia.	Face	Bore
202 204	1–1½	¾ 1	½ ¾–1	½			3 3	3 3	¾ ¾
224 225	2–3	1½ 2	1½	¾ 1	½		4 4	3½ 3½	1 1
225 254	5	3	2	1½	¾ 1	½ ¾	4 4½	3½ 4½	1 1⅛
254 284	7½ 10	5 7½	3 5	2 3	1–1½ 2	¾ 1½	4½ 5	4½ 4½	1⅛ 1¼
324 324	15	10	7½	5	3	2	5 6	6¾ 5½	1⅝ 1⅞
326 326	20	15	10	7½	5	3	5 8	6¾ 6¾	1⅝ 1⅞
364 365		20	15	10			9 9	7¾ 7¾	1⅞ 1⅞
365 404		25	20	15	7½ 10	5 7½	9 10	7¾ 7¾	1⅞ 2⅛
405 405		30	25	20	15	10	10 10	7¾ 7¾	2⅛ 2⅛
444 444		40	30	25	20	15	11 11	9¾ 9¾	2⅜ 2⅜
445 504			40 50	30 40	25 30	20 25	11 12	9¾ 11	2⅜ 2⅝
505 505			60	50	40	30	14 14	13 13	2⅞ 2⅞

HOW TO GET THE MOST OUT OF LEATHER BELTS

1. Keep the belts dressed.

Leather belts *must* be kept dressed—to prevent their fibres drying out. And keep them *clean*. Dress with good leather belt dressing every 3 months for ordinary conditions—every month or every week where air is dusty, very dry or where belts are overloaded. To clean a belt, wipe off dirt with waste dipped in gasoline. Let belt dry. Then dress it. Naphtha or carbon tetrachloride are also good.

2. Make all your leather belts endless.

They last longer, and avoid fastener trouble. Your millwright can be taught how to make endless laps

Continued on page 225

TABLE III

Experience shows that the most satisfactory and cheapest belt drives are those with belt speeds from 3,500 to 4,500 feet per minute. With them narrower belts and pulleys can be used, lowering bearing pressure is required, belt life is longer, and generally more satisfactory operating results are assured. Belt speeds in F.P.M. for different pulley diameters and R.P.M.

Pulley Diam. Inches	SPEED OF PULLEY—R.P.M.							
	3450	1750	1150	850	690	575	490	435
1½ 2	1354 1805	687 916	602		BELT SPEED F. P. M.			
2½ 3	2257 2708	1145 1374	753 903	667				
3½ 4	3160 3611	1603 1832	1054 1204	779 890	632 721	602		
4½ 5	4062 4514	2062 2291	1355 1505	1001 1113	810 902	677 752	642	
5½ 6	4965 5417	2520 2749	1656 1806	1224 1335	992 1082	828 903	706 770	684
6½ 7	5868 6319	2978 3207	1957 2107	1447 1558	1171 1261	978 1054	834 899	741 798
7½ 8	6771 7222	3436 3665	2258 2408	1669 1780	1351 1441	1129 1204	963 1027	855 912
8½ 9	7674 8125	3894 4124	2559 2709	1892 2003	1532 1622	1279 1355	1091 1155	969 1026
9½ 10		4353 4582	2860 3010	2114 2225	1715 1800	1430 1505	1220 1284	1083 1140
10½ 11		4811 5040	3161 3311	2337 2448	1892 1980	1580 1656	1348 1412	1197 1254
12 12½		5498 5727	3612 3763	2670 2782	2161 2256	1806 1881	1541 1605	1368 1425
13 13½		5956 6185	3913 4064	2893 3004	2342 2435	1957 2032	1669 1733	1482 1539
14 14½		6414 6644	4214 4365	3115 3227	2522 2617	2107 2182	1797 1862	1596 1653
15 15½		6873 7102	4515 4666	3338 3449	2705 2800	2258 2333	1926 1990	1710 1767
16 16½		7331 7560	4816 4967	3560 3672	2882 2973	2409 2484	2054 2118	1824 1881
17 17½		7789 8018	5117 5268	3783 3895	3062 3158	2559 2634	2182 2247	1937 1994
18 18½			5418 5569	4006 4117	3240 3338	2710 2785	2311 2375	2051 2108
19 19½			5719 5870	4228 4340	3422 3518	2860 2935	2439 2503	2165 2222
20 21			6020 6321	4451 4673	3605 3793	3011 3161	2568 2696	2279 2393
22 23			6622 6923	4896 5118	3965 4150	3312 3462	2824 2953	2507 2621
24			7224	5341	4330	3613	3081	2735

"Well, J. C., how did your idea on synthetic rubber pan out?"

SMALL BUSINESS MUST SURVIVE!

The Smaller War Plants Corporation is organized to conserve and utilize the facilities of the little manufacturer

It's good business to spread the business

By A. N. WECKSLER

AS the nation's industrial pattern becomes increasingly crystallized into a total war economy, decisions of policy made by the Government at this time in regard to the role of smaller war plants and to the extent of subcontracting will directly affect war production and post-war industrial organization.

The problem of subcontracting and full utilization of existing plant capacity has been considered successively by OPM, SPAB and WPB, since the inception of war-time Government controls over industry.

During the period when civilian production still constituted a major percentage of industrial output, the problem of subcontracting was not acute. Plants not engaged in war work continued to produce civilian goods at a high rate of output.

Efforts to stimulate subcontracting took numerous forms—public campaigns to induce subcontracting, pressure from labor to require subcontracting as a means of keeping certain communities in production, suggestions that materials be allocated to smaller plants to keep them in operation, and expedients such as parts exhibits and directories to acquaint prime contractors and subs with types of production available for subcontracting, as well as giving them information as to idle facilities.

It has been recognized that there has been a great deal of subcontracting, but the largest volume of subcontracts are held by large producers. The major problem now centers around the utilization of plant, tool and management of smaller plants.

Retarding Influences

Several factors have retarded the subcontracting of production to smaller plants. Major factor is that from the beginning of the defense program, emphasis on war output was wholly on delivery of finished products at the highest possible rate. This encouraged prime contractors to place purchases with a known producer whose past performance was a guarantee of quick delivery. This practice could be excused on the grounds that it produced a high rate of output within a short time.

Another factor which tended to cut subcontracting was the ready opportunity to expand plant facilities by the prime or the large subcontractor with Government aid, or with Government owned plants.

However, the period of plant expansion is over, with the exception of plants for the production of synthetic rubber, high octane gasoline and some exceptional facilities needs. Moreover, the pattern of war production which is being established now will largely determine which plants are producing and which are closed for the duration.

Question has been raised as to the efficiency of small plants. However, experience in the war production

Col. Robert W. Johnson
Vice Chairman of WPB
in charge of the Smaller War Plants program

program has shown that small plants can be efficient, both as to production and management.

The question of finances is not a major factor. Funds to finance production by smaller plants are available, and have been available for some time, even prior to the $150,000,000 revolving fund appropriated by Congress for the use of the Smaller War Plants Corporation.

The issue of the smaller plants has come prominently to the fore again, and WPB Chairman Donald Nelson has indicated that the problem of the participation of smaller plants in the war program is vital at this time.

Industry Needs the Small Plant

From the point of view of the Purchasing Agent, the preservation of smaller plants in the industrial picture is important as a means of preserving alternative sources of procurement. On the other hand, it is important to larger industry that small producers are maintained, as any major change in the industrial pattern would likely entail a drastic change in the relationship of industry and Government, with cartelization under Government controls a distinct possibility.

Both Government and industry recognize the urgency of maintaining smaller plants in operation. It is further recognized that previous steps taken have not been successful in making small plants integral units of the whole war production program.

Colonel Robert W. Johnson, who prior to taking over as WPB Vice Chairman to administer the Smaller War Plants Corporation was chief of the New York Ordnance District in the War Department, will seek to increase subcontracting.

In an exclusive interview for PURCHASING, Colonel Johnson, who is chairman of the board of Johnson and Johnson, makers of surgical dressings, stated that his approach to the problem is to induce the Government procurement agencies—Army, Navy and Maritime Commission—to seek further subcontracting. He further pointed out that it is to the interest of all Purchasing Agents in industry to spread the business, and that a major portion of his program will be aimed at getting the cooperation of Purchasing Agents in industry.

It is impractical, he pointed out, to require that any fixed percentage of a contract be subcontracted. His position is that it is good business to spread the business—"that it is always easier for any Purchasing Agent to buy as much as possible from a few, but it has been rarely good business".

Colonel Johnson pointed out that "larger manufacturers must know that their smaller competitors are their greatest defense both in war and peace".

Present Policies

Colonel Johnson took the smaller war plants problem over from Lou Holland, who at the outset of his administration advocated that the Government, through the Smaller War Plants Corporation, assume the prime contract and place subcontracts with smaller plants.

Position of Colonel Johnson is that in some special instances it may be desirable for the Smaller War Plants Corporation to take over the prime contract. However, he contends that this course would not account for any extensive subcontracting.

Key to the problem is the cooperation of the agencies which let contracts and of the Purchasing Agents in industry. However, other channels will also be explored.

The problem is further complicated by the political implications of the subcontracting picture. It was to satisfy political pressure that Congress established the Smaller War Plants Corporation with a $150,000,000 revolving fund, although when this money was appropriated it was recognized that availability of money to finance small plants was not the major obstacle to a successful subcontracting program. The Federal Reserve System has underwritten an easy money market for plants engaged in war work or seeking war work contracts, nd banks and other lending institutions within communities are anxious to finance local indus-

Active case files of small plant facilities are posted to a visible file in Washington and published weekly for field procurement officers

FORM WPB-2282
(1-19-43)

UNITED STATES OF AMERICA
WAR PRODUCTION BOARD
SMALLER WAR PLANTS DIVISION

PLANT INSPECTION REPORT

BUREAU OF THE BUDGET NO. 12-R822-43
APPROVAL EXPIRES JUNE 20, 1943

DATE

REGION

DISTRICT

WPB REPRESENTATIVE

TELEPHONE NUMBER

INSTRUCTIONS — This form is to be prepared in quadruplicate, by a representative of the plant inspected and a representative of WPB Smaller War Plants Division. The original copy will be retained in the district WPB Office and carbon copies sent to Facilities Records Section, Smaller War Plants Division, Raleigh Hotel, Washington, D.C.; and to the Deputy Regional Director for Smaller War Plants. The last copy will be retained by the firm. The information should reflect the business condition of the plant, its need for additional orders and the products which it can make. If the firm has machine tools or other fixed equipment which can be used for a variety of purposes, it will also be necessary either to obtain a facilities record (Form WPB-1546) or ascertain that the district office files contain the information required by that form. The entire form should be filled out on the initial inspection.

1. NAME AND ADDRESS OF FIRM

2. NAME, TITLE, AND TELEPHONE NUMBER OF PLANT OFFICIAL TO CONTACT IN WAR WORK

3. A. IF FIRM IS A SUBSIDIARY, GIVE NAME AND ADDRESS OF PARENT

B. IS PLANT ONE OF SEVERAL OPERATED BY SAME FIRM?

4. A. HOW SOON MUST PLANT HAVE ADDITIONAL BUSINESS?

B. ADDITIONAL MONTHLY BUSINESS NEEDED $

5. **DOLLAR VOLUME OF SALES (OR BILLINGS) OF ENTIRE FIRM:**

A. FOR CALENDAR YEAR 1941 $

B. DURING MONTH JUST ENDED $

6. **NUMBER OF WAGE EARNERS OF ENTIRE FIRM:**

A. AVERAGE FOR THE CALENDAR YEAR 1941

B. ACTUAL NUMBER AS OF THIS DATE

7. VALUE OF PLANT'S UNFILLED ORDERS AS OF FIRST OF THIS MONTH $

8. **CIVILIAN MANUFACTURING EXPERIENCE**

DESCRIPTION OF PRODUCTS MANUFACTURED IN THIS PLANT	ANNUAL DOLLAR VOLUME	INDUSTRY NO.

9. **WAR PRODUCTION EXPERIENCE** – LIST KINDS OF WAR PRODUCTS THIS PLANT HAS MADE, WHETHER AS PRIME OR SUB, AND IN WHAT AMOUNTS

10. **OTHER PRODUCTS PLANT CAN MAKE** – LIST PRODUCTS NOT MENTIONED IN QUESTIONS 8 OR 9 WHICH INSPECTION REVEALS THIS PLANT CAN MAKE

11. **CHECK WHICH:** ☐ INITIAL INSPECTION ☐ REINSPECTION

GPO—War Board 3610—p. 1

The basic information on plant facilities is prepared on the basis of personal inspections

try, both as a means of bolstering community interests and due to the fact that investment opportunities, except in war industry, are diminishing.

Registering Facilities

It has been the conclusion of various officials concerned with the subcontracting problem that the primary approach must be to obtain the active cooperation of the Army, Navy and Maritime Commission, rather than attempt to financially underwrite the subsistence of smaller plants, or through a "donation" of materials to guarantee their continued operation.

The basic technique through which further subcontracting will be sought is a register of all idle plant facilities on a current basis.

The Smaller War Plants Register is a visible index of the active case files of the Smaller War Plants Division as they exist in the WPB district offices throughout the country. This index is posted daily to a visible file in Washington from reports and other information, and is published weekly. Copies are furnished to each regional and district office, to the liaison specialists stationed in each field procurement office and to procurement officers and other Government officials having legitimate use for the Register.

Smaller war plants are listed by Census Bureau industry classifications, arranged by WPB regions and by districts within the regions. To locate a given industry in the Register, reference is made to the industry classification index in the front of the Register.

The information on each firm is taken from a Plant Inspection Report, WBP-2282, as soon as it is received. The firm's name will appear in the issue of the Register following receipt of the information, and will continue to appear each week until it is no longer in distress. When this occurs, the firm's name is removed from the visible index and from the active case file until such time as it again needs business.

How the System Works

The number of weeks the firm has been in the Register without receiving a contract can be learned from the "Entered" column, which shows the number of the issue in which the firm first was listed. Thus if the issue number of the Register is 14 and the number opposite a given firm is 3, it will mean that that firm has been in the Register 11 weeks.

Whenever a procurement office inspects a plant listed in the Register and forwards copies of its inspection report to the Smaller War Plants Division, this fact will be noted in the Register, but only if the plant has been approved by the procurement office.

The Register will be used in the Washington office of the Smaller War Plants Division as the basis for allocation of specific procurement items among WPB regions, after consideration of the relative capacities and needs of plants capable of making the item, as reported on Plant Inspection Reports. The Register can be used in the same manner by the regional office as the basis for allocation of specific procurement items among its district offices and by the district office as an index of its active case files.

The Smaller War Plants Corporation—distinguished from the WPB Smaller War Plants Division in that the Corporation is the agency designated by Congress to administer the revolving fund—records idle facilities and then attempts to channel contracts to the facilities.

Outlook is for a decided increase in the rate of subcontracting. Colonel Johnson calculates the potential at twenty-five to thirty-five billions of dollars. To achieve this goal, it will be necessary for Government to adopt a number of forceful expedients not yet employed.

Colonel Johnson points out that he has no illusions concerning the possibility of stimulating widespread subcontracting. He is convinced, however, that it is the wisest course for both industry and Government, and it will be his objective to convince industry of its wisdom.

The Legal Adventures of Buyem Wright

THE ADVENTURE OF THE EXCLUSIVE AGENCY

The energetic salesman was pushing a new line.

"We'll give you the exclusive agency in this state for our line and agree to supply your requirements, provided that the amount isn't under $500 per month, and that you pay inside of 10 days after delivery," the salesman proposed.

"Suits us," Buyem Wright agreed, and the contract was "reduced to writing" and signed by both parties.

This type of contract is very common, and gives rise to some interesting problems. For instance:

1. Is the buyer supposed to make any special efforts in selling the exclusive line?
2. Can he assign his contract?
3. If he cannot assign his contract, but does so, does that justify the seller in cancelling the contract?

These points were dealt with by the New York Court of Appeals in a case reported in 127 Northeastern Reporter, 898.

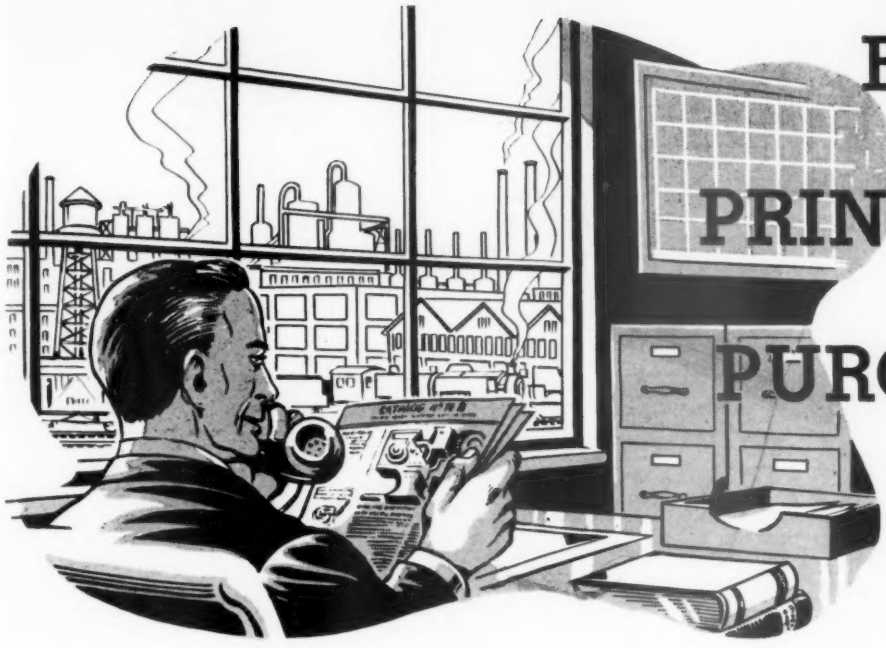
On the first point the Court ruled that Wright impliedly agreed to do whatever was reasonably necessary in selling the exclusive line.

In view, however, of the credit and the exclusive agency given to the buyer, it is fairly to be implied that he was to devote his time and do whatever was reasonable and necessary to selling the seller's product. The contract meant something. "It was not a mere scrap of paper," the Court said.

On the second point the Court arrived at a negative conclusion.

"The general rule is that rights arising out of a contract cannot be transferred if they are coupled with liabilities, or if they involve a relationship of personal credit and confidence," said the Court on this point.

On the last point the Court ruled in favor of the right to cancel, on the ground that the seller having contracted with one party, was entitled to say whether he would do business with a third party.



BASIC PRINCIPLES of PURCHASING

II. ESSENTIAL PURCHASING RECORDS

THE operation of purchasing involves a great deal of detail, and keeping track of detail requires records. The file of purchase orders issued, covering every transaction—open and completed—is in itself a basic record, and one that is produced in the normal course of departmental work. But it is not a convenient or satisfactory working record, for any purpose other than reference to the particular order. Its information regarding individual purchases needs to be organized so as to provide an overall picture, showing totals and comparisons and the record of past experience. When this is done, the information becomes not only a historical record but a tool of tremendous value in carrying on the departmental work.

The Purchase Record

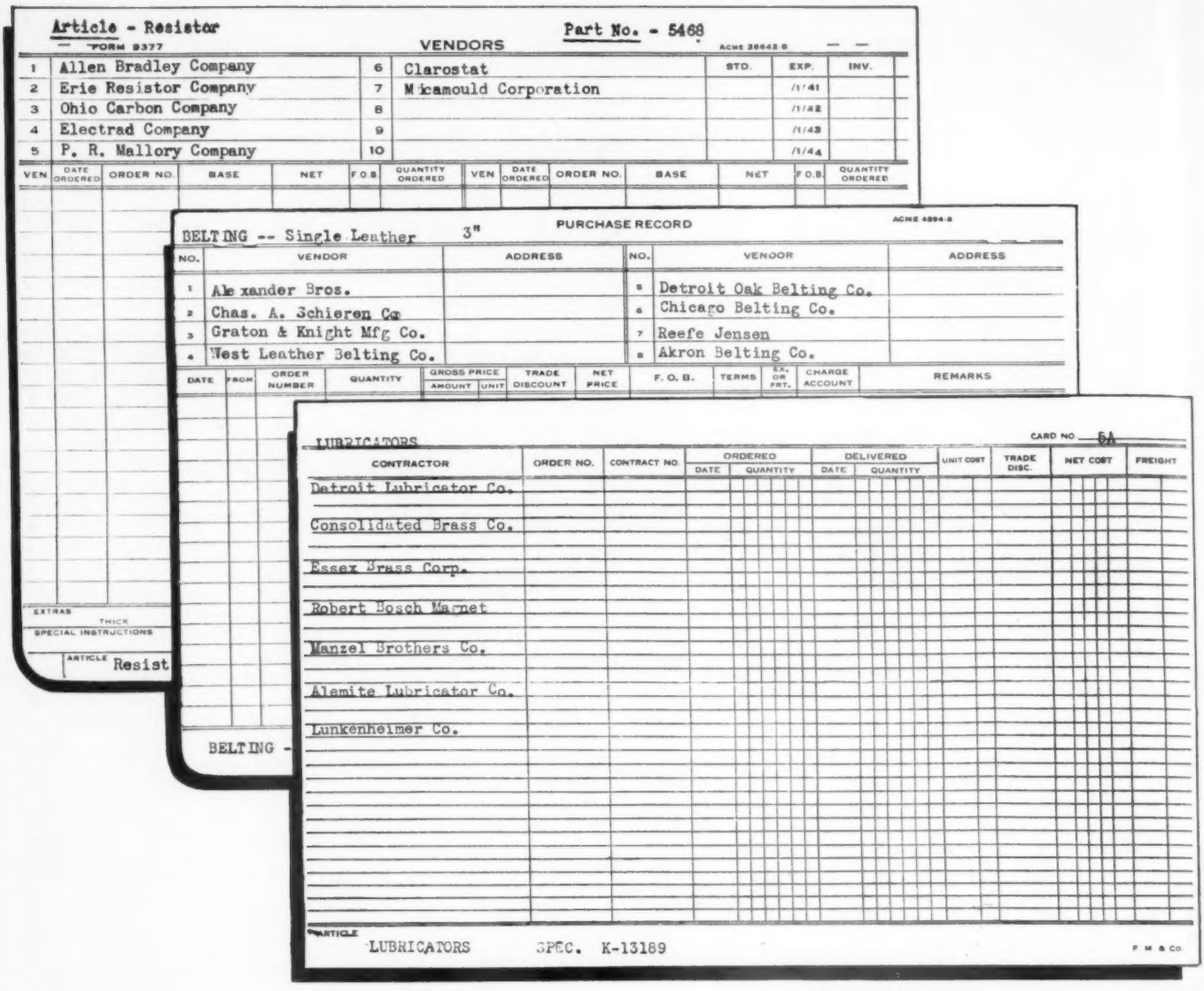
In most purchasing departments, therefore, these transactions are recorded in a separate file known as the purchase record, which is arranged according to commodity items and brings together at one point the essential data regarding purchases of each class of materials. Such a record, properly set up to fit the needs of the company, and kept up to date with daily posting of the orders as issued, may become the heart of the entire purchasing system, and pays for itself many times over in convenience, saving of time, departmental flexibility independent of the buyers' own personal knowledge, and as a guide to purchasing policy and selection of vendors. It can be a very simple record and still serve these purposes, or it can be elaborated according to the scope of the purchasing department's responsibility and the extent to which it becomes desirable to incorporate other records in this basic file.

The physical form of the purchase record may be a card index or loose-leaf binder. In either case, a visible indexing system, permitting direct and immediate reference to the item concerned, is highly desirable and adds greatly to the practical value of the record as a purchasing tool. A separate card or sheet is made out for each item of purchase; if an item is bought in several sizes, there is a separate card for each size, filed in a group under the appropriate index designation. Under the current system of governmental controls and restrictions applying to many materials, it may be advisable to break this down still farther and maintain a separate card for each different priority rating under which an item is purchased.

Indexing is according to commodity or product, since this is in line with the primary purposes of the record and also in line with the terms in which requisitions are made out. At the same time, it provides a cross-reference to the purchase order file, which is generally arranged in numerical sequence of the orders as issued, and it is therefore frequently useful in identifying a particular transaction when inquiries are made concerning needed materials without mention of the purchasing order number. Arrangement is alphabetical, using the principal noun designation or key word as the basis of indexing, so that related items may be found grouped under a single index section rather than scattered throughout the record. It is more logical and convenient, for example, to group the entire classification of "Pipe Fittings" instead of looking all the way from "Ells" to "Vees", or to group all "Cartons" under that heading instead of entering them separately under "Corrugated", "Fiber", or "Kraft". The details of such arrangement will vary somewhat according to the nature of the business and the purchase list, and a logical grouping for one company might not apply equally well for another plant; company usage will frequently determine the best method of classification, and daily use of the record will quickly develop the necessary familiarity with the indexing system adopted.

Minimum Information Required

In the simplest form of purchase record, the card will show the name or description of the product (used also for indexing) and columns for entering the number of each order placed for this item, the date, the name of the vendor, the quantity ordered, the unit



Typical purchase record cards show a standard pattern of information

price, terms, and f.o.b. point. As these entries are made, the record develops a variety of useful information:

(1) A cross-reference to the purchase order file, where more complete information is available regarding each individual transaction.

(2) A list of vendors from whom purchases have been made.

(3) A cumulative record of the volume of requirements over a period of time.

(4) A comparative record of prices paid and a general indication of price trends.

Increasing Record Values

The value of the record can be greatly enhanced, however, by setting it up to include some additional information. Most important—and so generally adopted that the stock forms carried by manufacturers of filing supplies for this purpose have incorporated it into their standard designs—is a space in the heading of the form for listing up to eight or ten potential vendors. When this system is used, the entries of orders placed use only a number or symbol to indicate the vendor of a particular order, identified by reference to the corresponding number in the heading.

Some purchasing departments enter only the names of vendors with whom orders have actually been placed, which adds nothing to the usefulness of the record. The more usual practice is to enter a selected list of suppliers who *could* satisfactorily furnish the product, whether or not their services were used during any given period. This list is compiled from the results of research, or tests of samples submitted, or, in cases where such procedure is required, after securing the approval of engineering or production departments on alternative sources of supply for products which are specified as "(Brand name) or equal." In any case, the entry of a vendor's name in this fashion on the purchase record card is the indication that deliveries from any one of the listed sources may be presumed to be satisfactory and acceptable, subject of course to the usual inspection and test of deliveries. This constitutes the "approved list" which is basic in purchasing work and in marketing as well.

Advantages of having this information on the purchase record are many. It obviates the necessity of repeated market research or reference to buyers' guides to find out where products are available. It indicates alternative sources of supply which may be necessary to maintain a competitive position, or for continuity of supply, or for the division of large quantity orders. It provides a logical list from whom quotations may be invited in the event that competitive bids are desirable.

For maximum usefulness, the list should be flexible, observing the policy that appropriate names are to be added as potential sources come to the attention of the purchasing department that promise any buying convenience or advantage. To avoid the danger of having an excessively long or unwieldy list, and to prevent the accumulation of "dead wood", it is likewise advisable to review the list from time to time, making whatever changes or deletions as may seem desirable. For example, if no purchases have been made from a certain listed vendor over a period of a year or more of active buying, it is open to question whether that name is contributing anything to the value of the list. It may be, for example, that the vendor's bids have been consistently high, and it might then be the part of wisdom to replace that name with that of another vendor who might inject more active competition into the situation. In fairness to the vendor, and as a matter of purchasing department efficiency, continuing requests for quotations should not be sent to a vendor when it is obvious that no advantage will accrue to the buyer and no business to the vendor. This does not apply, however, in cases where a name is listed as an emergency or stand-by source of supply, and the listing is primarily a matter of information that may be urgently needed upon some future occasion. It is scarcely necessary to point out that when repeated unsatisfactory deliveries have been received, or unfortunate commercial relations have developed which are beyond the point of mutually happy adjustment, the vendor in question can hardly be carried upon the record as an "approved source".

Another piece of information which is sometimes carried in the heading of the purchase record form is a complete specification, or reference by number to the specification, in place of the mere name or descriptive term applying to the item. The purpose of this is to provide complete ordering information in this one central record which is consulted whenever the item comes up for purchase. This is not always practicable, as in the case of long and involved technical specifications; nor is it a policy that is uniformly applicable, since few companies do all their buying on a strict specification basis. On a wide range of items in common use, the accepted trade terminology is quite sufficient to define what is wanted, to the satisfaction of both buyer and seller, and an attempt to phrase this in a more formal and explicit specification would tend to confuse rather than to clarify. A common sense rule of how much should be included in the record would call for everything necessary in a clear ordering definition, without attempting to make the record a dictionary of specifications, which can best be handled as a separate project.

Other items that are sometimes included in making the entries on a purchase record, with additional columns provided for such uses, are:

(1) Requisition number and date, indicating the authorization for making the purchase and the time required—or taken—in issuing the covering order.

(2) Plant or department for which materials are ordered.

(3) Record of deliveries. The chief value of this information is to show the amount of outstanding orders for each material at any given time—a factor which would not be apparent from reconciling the receipt of shipments against the individual order, where this check is normally made as a prerequisite for passing invoices for payment and transferring the purchase order from the open to the complete file. It also serves to show the time interval required for obtaining deliveries, and may provide a useful comparison between vendors as to their record for meeting delivery promises. Both types of information are valuable as a guide to purchasing policy, though some duplication of clerical work is involved since receipts must be checked against the purchase order, as noted above, and must also be entered on stock records. The purchase record itself is rarely concerned in going beyond receipts to disbursement of materials. This is properly a matter of stock records and stock control, which are a separate consideration.

(4) Transit time is sometimes recorded as a separate item, without the actual figures of delivery quantities and dates. It is used as an indication of the interval which must be allowed between the time of placing the order and the time when delivery may be expected. This assists in scheduling purchases and in specifying the method of delivery when prompt receipt of the goods is essential.

Price Records

The price record, as distinct from the purchase record, is kept in many purchasing departments. It is not a historical record of actual transactions, but a compilation of current quotations on standard items of purchase from regular suppliers. The information is obtained from catalogs, price lists and discount sheets, or from direct quotations which may be solicited at regular intervals or carried on a "firm until further notice" basis. Some companies follow the practice of sending their price record forms to the supplier to be filled in, and then placing them in the proper place in the record file. Other companies set up their forms so as to show a direct comparison between the quotations of several vendors on a single card or sheet.

The purpose of this record is to permit the pre-pricing of purchase orders at the time the requisition is received and the order issued, without the necessity of asking for quotations on every order, which takes effort and consumes time. It is applicable to a wide variety of standard items in relatively stable markets. Like the purchase record, it is arranged for reference according to commodities. Unlike the purchase record, it does not necessarily devote a separate card to each individual item or size, but can cover on a single card the entire range of sizes or colors in a related line. The schedule of quantity discounts is also shown. On items where a standard uniform price list is used in the trade, the purchaser's price record may be confined to noting the various trade and quantity discounts obtainable from each supplier, and a copy of the standard list is attached to the card.

It is practicable in many departments to combine the purchase record and the price record. This can be done by entering the quotations from all vendors on the purchase record as received, filling in the columns "Date—Vendor—Unit Price—Terms—F.O.B." but leaving blank the columns "Order Number—Quantity Ordered." This should be done with red ink or ribbon to set these entries apart from the record of actual purchases. The price records are kept up to date just as in the case of a separate price file, and in the event of a new or changed quotation it is entered with the appropriate date while the former quotation is cancelled by drawing a line through it, showing that it has been superseded and is no longer valid.

When competitive bids are invited on a specific purchase, it is customary to collate these quotations on a single sheet for comparison and analysis. This provides in convenient summary form the price information that may be needed if that transaction is to be reviewed or audited. Such quotation summaries are sometimes regarded as a part of the general price record, but it is

the more usual practice to file them in the folder with the purchase order issued to the successful bidder, and are considered as a part of that particular transaction.

Vendor Record

Government purchasing agencies and others using a long list of bidders on a majority of their purchases, generally maintain a file showing the names and addresses of vendors who are to be invited to bid on each class of materials. In private business, where a representative list of potential vendors is made a part of the purchase record itself, there is no necessity for maintaining a separate file of this sort for reference. It has been found advisable, however, in some instances and for a somewhat different use, to keep lists of vendors as a part of the purchasing department records.

In a large railroad purchasing office, for example, which uses the "approved vendors" system in its purchase record, the vendors' names are kept in stencil form. Standard ordering descriptions of regularly purchased items are likewise kept on stencils. When quotations are requested, or orders issued, the appropriate stencils are used in a duplicating machine and the required number of copies are struck off with only one impression per copy. This has been found an efficient method of handling the mechanics of order writing in this instance, one of the advantages claimed for it being the absolute accuracy of both the address and the description of material, since no clerical transcription is involved.

In other companies, a vendor record containing the proper company name and complete mailing address is maintained for the convenience of the order-writing clerk. The buyer inserts the price and other pertinent data on the requisition, with the instruction: "Order from ABC," and can turn it over to the order writer with confidence that it will be properly addressed to "The ABC Manufacturing Corp." with the street address required for prompt delivery, without the necessity of referring back to correspondence or other records to verify the address. It is a convenience that speeds up clerical routine to a considerable degree and is well worth the cost of the initial compilation. The wheel type of card index, in which the alphabetical arrangement runs continuously around the wheel so that a name can be quickly located and held in position for copying merely by rotating this file at the typist's desk, has been found particularly well adapted to this purpose.

A more comprehensive type of vendor record is used in a number of companies for the use of the Purchasing Agent and buyers who want the facilities for making prompt personal contact with their suppliers for purposes of follow-up, plant instructions, emergency requirements, and the like. The correspondence file is awkward and inadequate, and it is even worse to depend on thumbing through the accumulation of salesmen's business cards. A typical vendor record of this sort is arranged alphabetically by company names, and contains:

Office and plant addresses and telephone numbers.

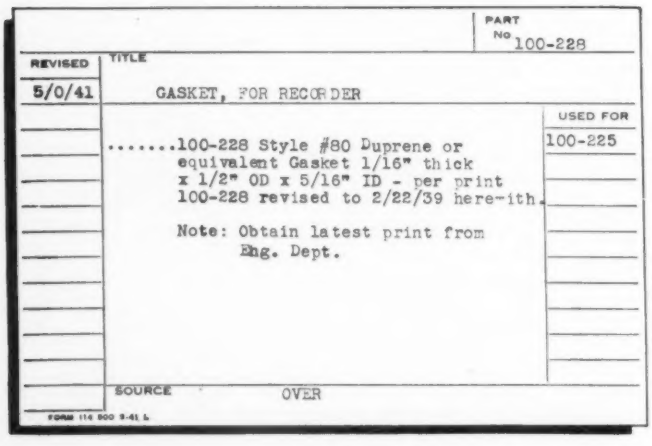
Name and title of office and plant executives to be contacted.

Telephone number for calls made after office hours.

Branch offices and distributors serving the territory.

Name of the salesman serving the buyer's account, with office and home addresses and telephone numbers.

This is a type of record that may not be needed very frequently, but is urgently needed when the occasion for its use does arise.



PART No. 100-228

REVISED	TITLE	USED FOR
5/0/41	GASKET, FOR RECORDER	
	.....100-228 Style #80 Duprene or equivalent Gasket 1/16" thick x 1/2" OD x 5/16" ID - per print 100-228 revised to 2/22/39 here-ith.	100-225
	Note: Obtain latest print from Engg. Dept.	
	SOURCE OVER	

FORM 114 800 9-41 L

Standard part numbers and ordering description are shown in this record; vendors' names are on back of card

Contract Record

In addition to day-to-day purchases, most purchasing departments enter into some long-term contracts for major materials, against which orders are placed for deliveries without going through a further process of negotiation. The contracts themselves, being both voluminous and important, are generally filed in a place of safe keeping, while purchase operations under the contracts are handled from a contract record.

The contract record normally consists of two parts. In the first place, there must be a method of bringing it to the attention of everyone entitled to issue orders against the contract—such as branch plant Purchasing Agents who have had no voice in negotiating the contract and would otherwise have no knowledge of its existence, but who are expected to buy under its terms and share in its advantages. A duplicate record of the contract is therefore made for each such purchasing officer, usually on a punched sheet for insertion in a special binder furnished him for the purpose. This record sets forth the product or material covered by the contract, the name and address of the vendor, prices and terms agreed upon, any special ordering instructions, the contract number to identify this agreement in his orders and correspondence, the effective date and the expiration date, which are often of prime importance. Such contract records must be kept up to date at each ordering point, and when a new contract sheet is issued superseding one previously in force it is customary to include the specific instruction that it is to take the place of "Sheet number, Contract number, Date" and that the obsolete record is to be removed from the binder at once to be filed, destroyed, or returned to the central purchasing office as the case may be.

At the central purchasing office a corresponding record is kept, and in addition to this a record of all orders issued and all deliveries made against each contract, from whatever source, so that the current status of the contract and the total amount of material involved may be known at all times.

This requires copies of all orders to be sent to the central purchasing office as issued, for purposes of control, which is a common requirement in any case. So far as the record of individual orders at branch plants is concerned, there is no reason why they can not be entered in the regular purchase record, and followed

through like any other purchase. They are usually identified as contract transactions, however, by the use of a special series of purchase order numbers or by using a prefix letter in connection with the regular series.

Specification Record

Reference has previously been made to specification buying and to entries regarding specifications in the basic purchase record. Specifications are wider in scope than the purchasing operation alone. They are developed through the cooperation of engineering, production and purchasing departments, often through a special committee set up for this specific purpose, and not infrequently as a special responsibility of materials engineers and specification writers. Their use affects not only buying, but design and operation and maintenance as well—in fact everyone who has occasion to write requisitions. Thus purchasing has a very keen interest in the development and use of specifications beyond their application as a purchasing tool, and the specification record is more than a purchasing department document.

Adoption of a specification presupposes that it shall be made a matter of record for everyone concerned, which includes not only the internal company departments already mentioned, but also the vendors who are asked to supply material according to specification. It is obvious that many requests for bids, and many purchase orders, must be accompanied by copies of the pertinent specifications. Some purchasing departments go farther than this and have important specifications such as those governing the analysis and properties of metals, for example, prepared in printed pamphlet form for their suppliers' files. Buying agencies of the federal government, the Army and Navy, have specifications in mimeographed or printed form for distribution to interested bidders and also for general reference.

While many companies develop their own specifications for special materials or for particular uses, a large proportion of those in use represent the adoption of standards developed by engineering societies, the Navy, the National Bureau of Standards, and similar organizations that have taken a leading part in this type of work, and whose specifications are published for general availability. In such cases, the normal reference is merely in the form of the identifying number by which the specification is known, but the complete text of any such specifications adopted by a company for its own use should be included in the specification record.

A good specification should be clear; adequate in its definition of the required materials, dimensions, finish, and proposed usage; explicit as to tolerances, and not unduly restrictive so as to involve unnecessarily fine finishing operations and an excessive proportion of manufacturing rejects. It should be prepared with full consideration of exisiting national and commercial standards, and keyed to practicable methods of inspection and test, which should be set forth in the specification. Particularly to be avoided are factors which would restrict open competition among reputable suppliers who would otherwise be equipped to produce the item. Where the method of packing has a bearing on the utility of the product, in disbursement or use, or on the protection and storage of the material, this should also be included so as to avoid unnecessary handling and repacking costs, again bearing in mind that established customs or standards of the trade should be observed so far as possible. Whenever it is advisable to include drawings or diagrams to clarify the description, this should be done. Finally, specifications should be subject to periodic review and revision. A well prepared specification record is the key to quality control.

Closely allied to specifications is the whole subject of standardization, a policy of ranking importance to all purchasing departments. To encourage the use of accepted standards and specifications, and to avoid the necessity of returning and revising requisitions on which non-standard items have been specified, an increasing number of purchasing departments are turning to the use of the standard stock catalog.

This is similar to the specification record described above, though less formal and more broadly inclusive, covering the whole range of materials which are regularly carried in stock or purchased. To this end it follows very closely the classifications of the purchase records. The most practicable form for such a compilation is the loose-leaf binder, which can be furnished for, and conveniently used by all those in the organization who have occasion to make requisitions from stock or for purchase—field and shop men, designers, clerks, stores personnel, etc. It can be used with or without formal specifications on each item. Its use is to facilitate the ordering of approved materials by showing what is available and standard for company operations, and by providing a standard nomenclature or identifying part numbers. In citing the advantages which have accrued from such a record, the Purchasing Agent of a large utility company reports that it has "made for simplification of items to be purchased and consequent buying in larger volume; for reduction to a negligible percent the requisitioning of material with insufficient description; for allowing the buyer leeway in securing competition due to the omission of trade names from ordering descriptions; and for a reduction in the purchase of specially designed items, with a saving of both cost and delivery time."

Follow-Up Record

Under present economic conditions, the follow-up or expediting of deliveries assumes particular importance, though even in normal times it is a matter of no small concern to purchasing departments. Few companies make it a policy to follow-up all orders; a majority of orders placed for regular goods with regular suppliers may be expected to come through in due course, and under normal buying conditions requirements can be foreseen and orders placed sufficiently in advance of the need to allow ample time for delivery. But a certain percentage of orders have always required follow-up, and this percentage is growing under the wartime stress of shortages, the necessity of dealing with new or unfamiliar sources of supply, the influence of priority ratings upon manufacturing schedules, and the emphasis on scheduling purchases more closely to the need as regards both quantity and timing, which cuts down the marginal factor of safety.

No special form is required for a follow-up record. The usual practice is to make an extra carbon copy of the purchase order, with a space for follow-up information printed either at the foot of the page or on the reverse side. Ordinarily, the day's grist of purchase orders would be sorted and follow-up copies retained only of those on which the necessity for such action was anticipated. The safer method is to hold all purchase orders ready for possible follow-up action if, as and when required. In the simpler purchasing system where one working copy of the purchase order serves al departmental purposes, follow-up data and receiving records may both appear on the reverse side of this

working copy. The present discussion applies primarily to those systems where a separate file or record is kept.

The purchase order copies are filed numerically for orderly reference. This also provides an automatic visual indication of the oldest unfilled orders, which are presumably in arrears as to delivery, but this may be no accurate measure of their relative urgency. The first step in setting up the machinery for follow-up is to note the "date wanted" entry on the purchase order and to schedule the follow-up action with this as the goal. It should be checked with the vendor's delivery promise as soon as the acknowledgement is received to get a realistic and practical estimate of what can be expected.

Working back from the delivery promise for a predetermined period, which depends on the time required for manufacture and in transit, a date is set for the first follow-up and a visual signal indicates the date on which this action is to be taken. A simple method of accomplishing this is to have the purchase order copy marked off in thirty-one divisions across the top of the sheet, corresponding to the days of the month. A colored tab placed at this position clearly marks the particular orders which should come up for attention each day, and the distinguishing color of the signal indicates the month—e.g., red for January, green for February, etc. A sequence of two or three colors at the most should be sufficient for all needs as the deliveries are made and the same sequence of colors can be rotated for the succeeding two or three month period. Some companies have adopted the practice of using one color for "current month", a second for "following month", etc., but this system is not recommended since it requires a readjustment of signal tabs at the first of each month to no good purpose.

As soon as the follow-up action has been taken, the signal is moved forward a predetermined number of days to indicate the date of the second follow-up in the event that neither a delivery or a new delivery promise has been received in the meantime. Daily receiving reports are checked with the follow-up file, and orders are removed from the file as deliveries are completed. If there is any significant record of required follow-up action to secure the delivery, the record is filed with the completed order folder. If no action has been required, so that no information would be added by retaining this extra copy, it may be destroyed.

The follow-up record is, of course, not an expediting system in itself, any more than the purchase record is a method of negotiation. Its purpose is to implement follow-up by making sure that no orders are overlooked and that the expediting is carried through in an orderly manner. In normal times it would direct and schedule a somewhat routine procedure of letters, telegrams or telephone contacts, generally following a standard pattern that can be modified or intensified according to the urgency of the need and the judgment of the Purchasing Agent. In the emergency conditions of wartime operation, the force and tempo of follow-up has been stepped up. Expediting has become scheduling, and contacts for this purpose are characteristically more on the basis of personal inspection of the progress of the work, started much earlier in the process of manufacture so that special effort may not be too late to be effective, and carried on systematically until the actual shipment is made.

This does not detract from the importance of a central record, but rather enhances it. Where such organized follow-up is provided for, it is probable that the record will be in the hands of a full time purchasing department employee charged with following through, rather than an incidental clerical responsibility, with action referred to the respective buyers as required. The entries will be more frequent and in the nature of regular progress reports from the men in the field.

Receiving Record

The act of receiving deliveries may or may not come under the jurisdiction of the purchasing department, but the fact of deliveries is an essential part of purchasing information. The receiving record is therefore included in this survey.

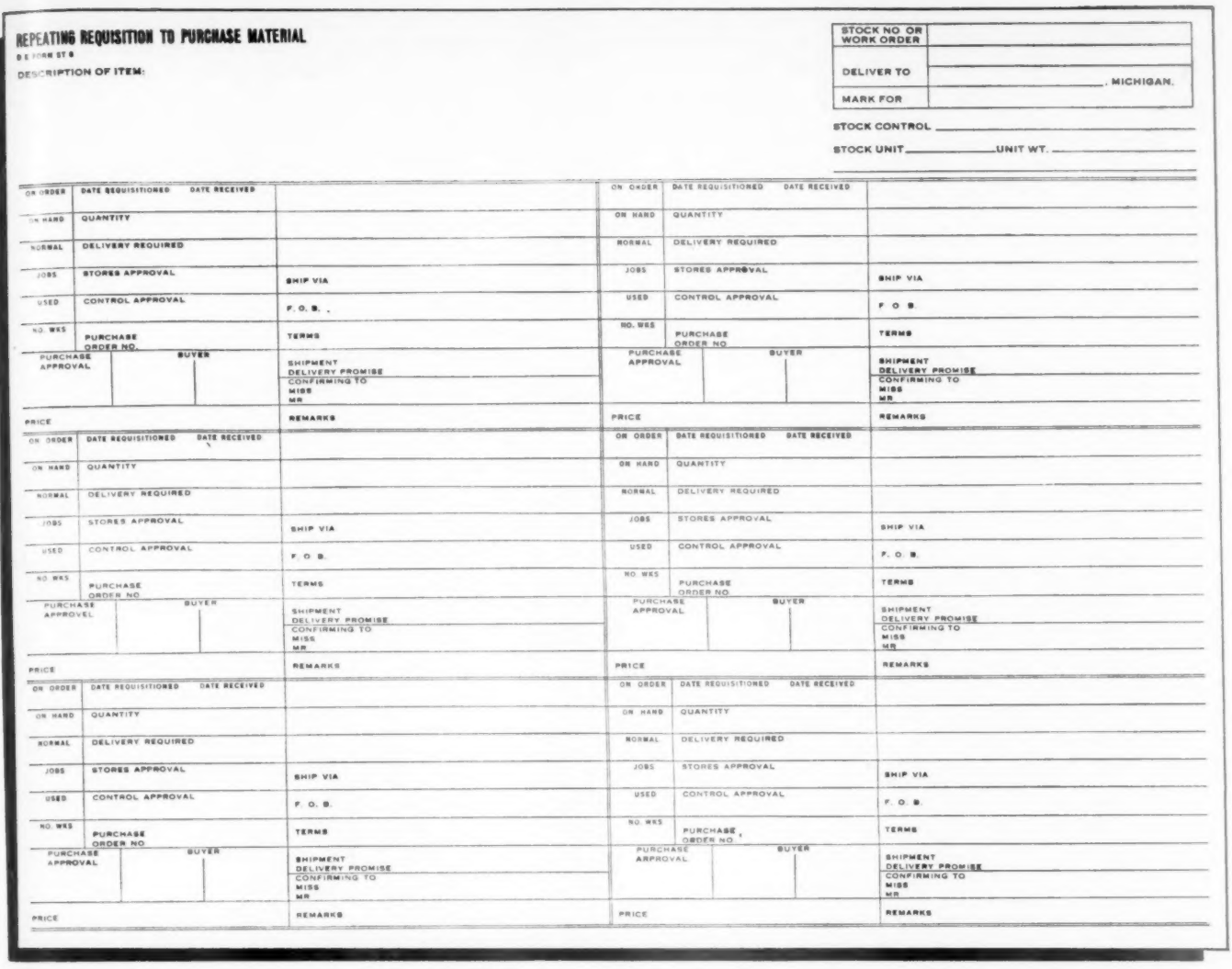
Every shipment coming into the plant must be identified and recorded. For purposes of identification, most companies specify on the purchase order that the order number must appear on every package or case. Other pertinent information for the record includes: name of the shipper, case number (or corresponding data), weight, whether complete or partial delivery, condition of the shipment, method of transportation, time of receipt, and any charges for transportation or cartage.

The purpose of the record is twofold: (1) to advise the interested department—whether stores or some operating department—that the material is now on hand and available for use; (2) to check against the purchase order as evidence of its completion and against the vendor's invoice before passing it for payment. Where inspection of the merchandise is prerequisite to acceptance and payment, a copy of the receiving report may be routed along with the goods to the responsible department, but it is advisable to report the physical delivery promptly to the purchasing department in any case, to prevent unnecessary follow-up and to permit the prompt processing of invoices on which cash discounts may be earned.

Various means of making this report are used. The simplest—but not the most satisfactory—is to have each incoming shipment entered by the receiving department consecutively on sheets provided for the purpose, sending each sheet to stores or purchasing as it is filled, so that the information may be drawn off and applied to the appropriate transaction in the purchase order file.

A more positive method makes use of an extra copy of the purchase order, sent to the receiving department at the time it is issued. This order copy serves to advise the receiver that the shipment is expected, and just what is expected. Many companies use cut carbon sheets so as to eliminate price information which is of no concern to receiving and which may be regarded as more or less confidential. Some companies likewise eliminate information on quantities ordered, on the theory that if these quantities are known there may be a tendency to accept this figure without making a careful check by weight or count; the general policy, however, is against this latter practice, assuming proper performance in the receiving department and placing greater value on letting the receiver know whether the quantity is correct or whether it constitutes only a partial delivery.

The purchase order copies are filed alphabetically by vendors' names as the most convenient basis of reference, since the shipper's name may be expected to appear on the case or package and on shipping documents even when the order number is omitted. On the back of this order copy, space is provided for entering a record of receipts. If the shipment is complete, this data is entered and the order copy is returned to the purchasing department (sometimes via the stores



REPEATING REQUISITION TO PURCHASE MATERIAL

DESCRIPTION OF ITEM:

STOCK NO OR WORK ORDER	
DELIVER TO	, MICHIGAN.
MARK FOR	

STOCK CONTROL

STOCK UNIT UNIT WT.

ON ORDER	DATE REQUISITIONED	DATE RECEIVED			
ON HAND	QUANTITY				
NORMAL	DELIVERY REQUIRED				
JOBS	STORES APPROVAL		SHIP VIA		
USED	CONTROL APPROVAL		F. O. B.		
NO. WKS	PURCHASE ORDER NO.		TERMS		
PURCHASE APPROVAL		BUYER	SHIPMENT DELIVERY PROMISE CONFIRMING TO MISS MR		
PRICE			REMARKS		

The "repeating requisition" makes it unnecessary to copy recurrent data for each new purchase

department), where it is attached to the working copy, reconciled with the invoice, and the papers covering the whole transaction are transferred from the open file to to the completed file. If the shipment is not complete, the data is entered as before, and is also placed on a "Partial Delivery Ticket" which goes to the purchasing office, while the order copy is retained in the receiving department pending further deliveries just as the working copy is retained in the purchasing department's open order file until the order is completed.

One of the most satisfactory methods of handling the receiving record, other than that just outlined, is by use of an autographic register which contains receiving receipts in roll form, in duplicate or triplicate. When the entry is made, the original is detached for purchasing department use, and a carbon copy remains in the machine, providing a complete and consecutive record of all shipments received. This method has the advantages of utmost convenience in operation, the making of all necessary copies with a single pencilled entry, and a permanent, tamper-proof record.

Stock Record

The basis of all materials control and accounting is the stock record or perpetual inventory. Essentially a stores department record, it is also essential to purchasing and should be readily available to the purchasing department. It is not recommended that a duplicate set of stock records be maintained, for aside from the additional clerical work involved, the probability of error would be increased. It is well known that even the most carefully kept inventory record must be checked annually or oftener by a physical inventory, and the two results are rarely in exact agreement. It is important, therefore, that any additional chances of error through copying should be avoided so far as possible.

In smaller companies, or where the management of stores is a direct responsibility of the purchasing department, stock records may be kept in conjunction with the purchase record, for as pointed out in a previous section, the simple purchase record may be elaborated so as to incorporate a variety of additional information. But where the two functions or departments are separated either in location or in the organization plan of management, a separate stock record is likely to be more useful. For convenience in reference and coordination, the classification and arrangement of stock and purchase records should be identical.

The stores record carries entries of both receipts and disbursements on each item, and a cumulative total of material on hand or available after the respective additions and deductions have been made. For the sake of completeness, the record should include: date when additional supplies were requisitioned, date and quantity ordered, date and quantity received, date and quantity disbursed, quantities reserved or earmarked for special projects, and running total of quantity in stock. The record of disbursements is especially valuable to

purchasing as indicating the rate of use—an important factor in calculating reasonable purchase quantities.

On regular stock items, the heading of the card generally carries a statement of maximum and minimum quantities. The minimum quantity represents the ordering point, i.e., when the running stock total gets down to this point a purchase requisition is issued for the replenishment of supplies. The difference between the stated minimum and maximum limits would normally represent the quantity to be ordered, based on the factors of economical purchase quantities and time required to effect delivery, as well as the advisable limitation of inventory investment. Good purchasing and stores practice requires that maximum and minimum quantities should be flexible, subject to revision upward or downward according to conditions.

The purpose of maximum and minimum figures is both to control the overall investment and to maintain balanced supplies. It should be borne in mind that the logical quantitative measure of stocks is a time factor, and not primarily a case of the number of units or their dollar value. The important consideration from an operating standpoint is that a given number of days' or weeks' supply should be available. This again emphasizes the need for revision and flexibility, for when operations are expanding the same quantity which formerly represented a four weeks supply may become only three weeks or two weeks supply, perhaps inadequate to insure continuity of manufacture; while in a time of decreasing activity or changes in the product schedule, a normal four weeks supply may suddenly represent the requirements for a year or more, involving costly and wasteful carrying charges, and possible depreciation or obsolescence.

In the governmental restrictions on inventory of many materials, the "lowest practical working inventory" has frequently been defined as a thirty days supply. Use of the time element as the determining factor thus becomes mandatory for the present at least, and logically so. As a general principle, while quantities should be subject to modification on the basis of prevailing conditions and purchasing judgment, the time element of supply should always provide the norm or objective in economical operation of stores. Stock turnover, quite generally accepted as the measure of stores department efficiency, is likewise a time calculation.

The heading of each card will probably also contain a reference to unit cost. This is useful information for pricing the inventory in the periodic audit of company assets, for comparative purposes, and for the calculation of costs against a bill of materials. The character of this unit cost entry may vary with the accounting policies of different companies, generally following one of three basic methods—actual cost, standard cost, or current market (replacement value). Each method has its proponents and its particular advantages from the accounting standpoint.

The heading will also carry a section, shelf or bin number to indicate the location of the material in stores, for quick reference when requisitions are received and disbursements to be made from stock.

Normally, many companies consider material or tools as expended when they are disbursed from the central stores to departmental stock rooms or tool rooms located for convenience at various points throughout the plant. For accounting purposes, the material is charged at that time to the respective using departments, and is separately calculated in taking and valuing the annual physical inventory. Under governmental stock controls, however, all such departmental supplies are considered as a part of the current inventory and must be accounted for in the monthly or quarterly reports to governmental control agencies. On all items affected by such controls, therefore, it is necessary to carry detailed records in branch stock rooms, correlated to the central record in such a way that their stocks may be quickly ascertained and added to the total.

Returnable Containers

A factor of considerable importance in many companies is the item of containers, drums, reels, etc., used in the shipment of materials, which are billed to the company on either a direct or memorandum invoice and which are returnable to the supplier for credit, for further use. Unless these are carefully accounted for and promptly returned, there is a growing liability and potentially an avoidable waste which involves additional product cost, as they are easily mislaid, damaged, or misused, and the credit opportunity is lost. In some cases a time limit for acceptable returns is set.

In a well ordered operation, the expectation is that such containers will be returned and the credit earned. Consequently it is advisable, both from a materials and accounting viewpoint, that they be carried in a separate account on a memorandum basis, rather than involving the actual cost records with charges and credits that should eventually offset each other. At the some time, the separate record provides a more positive control over the situation and the mechanism for following through.
and credits in the general accounting records—with sub-cards for the various types of containers furnished by each. It is kept in standard ledger form, with dol-

The usual set-up for a container record is to index it according to suppliers—corresponding to the charges lars-and-cents entries as made by the supplier, charged out against the using departments as the material is issued, and credited as the container returns are made. A cross-file arranged according to departments is useful in following up for prompt return. Since the items are relatively few, the maintenance of such a simple dual file is not burdensome, and results are usually important enough to justify the practice.

To carry on such a program successfully, requires the cooperation of using departments and their education as to the importance of this too-often neglected item of cost. A direct charge to the department, brought to the attention of the department head by a dollars-and-cents memo, is probably the best form of education and the most effective means of securing cooperation, for department heads are anxious to avoid any such extra charges against the cost of operating their departments. Menwhile, the extra costs are also a matter of concern to the purchasing department, which is not relieved of its responsibility to exert every effort to see that the credits are earned. A regular periodic review of the departmental cards will show the location of returnable containers and indicate any laxities of attention to this phase of operation, facilitating the finding of "lost" containers and increasing the promptness and completeness of their return.

Next Month: Quality Factors in Purchasing

Address delivered before the Purchasing Agents Association of Indianapolis.

The ECONOMIC SITUATION

Review and Outlook

Analysis of the factors by which industry and the nation must chart the course to victory and to peacetime readjustment

By Dr. J. F. BELL

Professor of Economics
University of Illinois

WE HAVE recently come to the end of an historic year and stand at the threshhold of an even greater one. We have had to rescale the framework of our thinking several times in the past year. Our blueprints for victory have been remade several times, and even now we are not too sure of their final form. Every man, every business, every theory, and all our practices have been tested and are still being tested in the awful crucible of war.

War is indeed a challenger. While the challenges are in a hundred fields, this discussion is deliberately confined to the general business field, which has indeed been tried and not found wanting. The dynamics of business in peacetime is an established fact. Add to this demands for performance many per cent above any normal peacetime demands, economic unbalance, dislocations, maladjustments, disappointments and delays, obstructions, waste, shortages, government regulations and red tape, and you have but a few of the added problems that challenge the businessman today.

We can now make a check-up of the eventful year of 1942 and see some of our performance in fairly clear outline. Super tasks were assigned to business to be finished in minimum time. The tasks were "must" orders; there was no time to waste. The old adage of "haste makes waste" turned out to be true; yet in spite of many heartbreaking reverses, the tasks were practically all accomplished. Industry was asked to do in a few months more than a year what it took Hitler approximately 6 years to do in the most highly regimented economy in the world. I need scarcely call attention to the fact that our work was done by free men, without compulsion, and with full cooperation of industry and government.

In the years to come the historian will in all probability speak of the miracle of the second World War as being that of production. The full significance of this *fait accompli* will not be known nor fully appreciated until long after the smoke of battle has cleared away. Just as business will be a highly important factor in winning the war, it must also help in winning the peace. Chancellor Von Hindenburg spoke of American industry in his memoirs of World War I in a manner which not only explained Germany's defeat in the war but also portends the same fate in this war when he said:

> "America's brilliant, if pitiless, war industry had entered the service of patriotism and had not failed it. They understood war."

The scoreboard shows that our industry has not failed patriotism in this war and that it understands production for both war and peace better than any other in the world. We are justly proud of the records made in the past months, but the war is not over and the necessity for even greater performance confronts us. The crescendo of production must rise at an even faster pace than that of battle, for battles are won with the products of industry or lost for want of them.

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Dr. Bell has been in close personal touch with the program of price control. He served in the Office of Price Administration from June, 1941 until October, 1942 as Associate Price Executive in charge of textiles.

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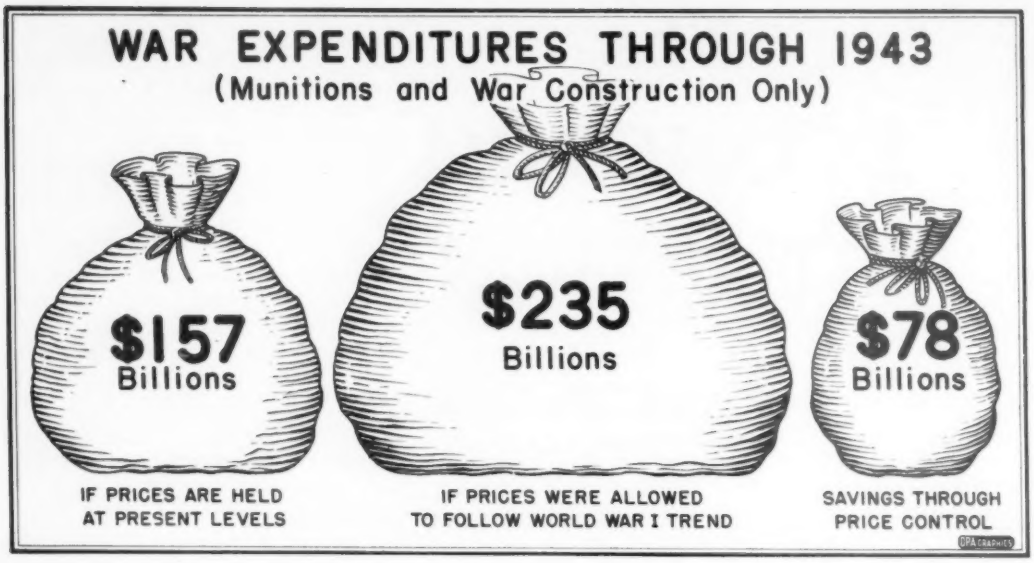
Review of Production

One need not be reminded how little material we had at the outbreak of the war in Europe in 1939. Likewise it is not exactly a monument to official farsightedness to realize how defenseless we were on December 7, 1941—more than 2 years after the conflagration started in Europe, and when it was evident that we would be drawn into the conflict. After the attack at Pearl Harbor everyone got down to business, and now we have a full year of war effort behind us. It is this score of production that we shall look at and from it draw some observations for 1943.

We have long since passed through the *first* stage of production, viz., tooling up. In an ordinary year the average output was 25,000 machine tools. Today more than 1,000 machine tools are built and shipped to war factories every 24



Uncontrolled prices would increase our bill for war materials by 50%.

Price control has thus far been an effective means of holding down living costs.

hours, 7 days per week. Every month we turn out more machine tools than were formerly produced in a normal year. In dollar value, machine-tool production amounts to about $1,380,000,000 per year. Our present capacity is 16 times the peak of World-War I production. The first shortages in our war production program arose in the machine tool industry! Now we are supplying not only ourselves but everyone of the allied nations, and South America as well.

The second stage is nearly complete; this called for expanding the army and equipping it to fight all over the world. The cost of the war production program in 1942 was $52 billions, (52,406,000,000). We spent at the rate of over $6 billions (6,125,000,000) per month at the end of 1942, or nearly 4 times what was spent in 1941. The total amount spent for war may be doubled in 1943, while the proposed war costs for 1944 are set at 100 billion. The speed of the acceleration was 4 times as great at the end of the year 1942 as at the beginning. In other words, we are spending currently two-thirds as much as our national income. Of the total cost of war production last year, $32 billions went for munitions. The output of physical weapons for war, according to OWI information released on the anniversary of Pearl Harbor, was:

49,000 planes of various types
32,000 tanks
17,000 antiaircraft guns
8,000,000 tons of shipping

It is estimated that our production of planes is 2½ times greater than the combined Axis output.

These were the items called for by the President in January, 1942, when he startled everyone—including industry—in announcing a goal of:

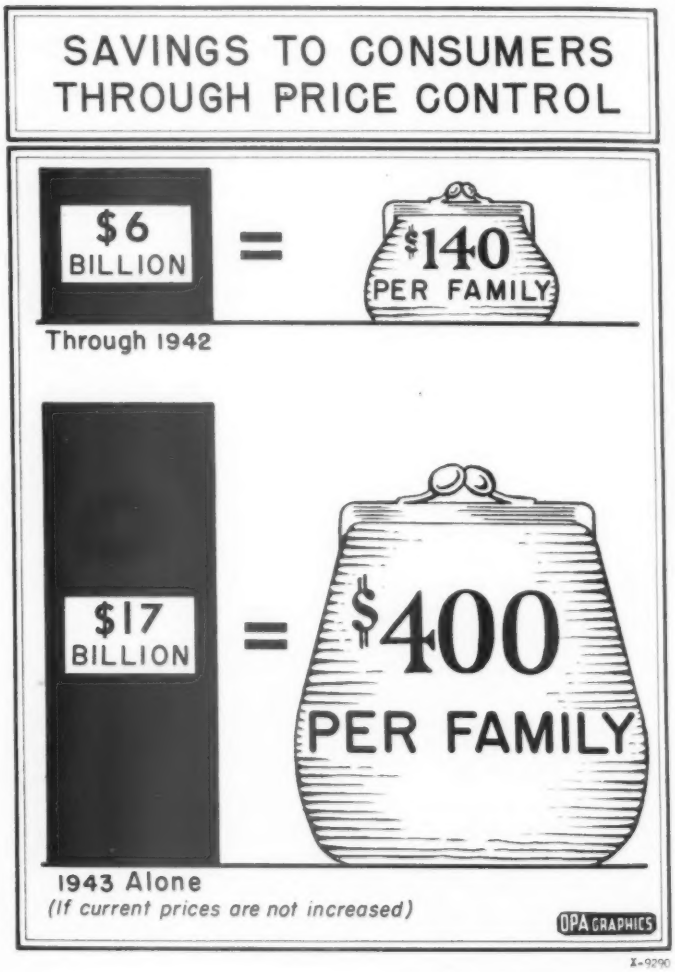
60,000 planes
45,000 tanks
20,000 antiaircraft guns
8,000,000 tons of merchant shipping

The goal for 1943 is:

125,000 planes
75,000 tanks
35,000 antiaircraft guns

The original goal of 10,000,000 tons of merchant shipping has already been raised to 16,000,000 tons. While it is true that the goal of production in planes has not been reached, a glance at former production figures gives some source for pride. In 1938, our average output was about 100 planes per month. In 1939, it reached 200 per month. In 1940, our output was only 450 per month after considerable effort. By the end of the past year our output in one month exceeded 5,000, or in other words we were producing in a single week an amount greater than a former year's total production.

The mark set for merchant shipping is the only goal



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that was reached in 1942, in so far as the total output is concerned. The President has explained that these goals are the end-of-the-year, monthly achievement goals rather than the total output. The goals would have been exceeded had it not been for the adaptations that came during the year which reflected the change in methods and locale of battle. A certain amount of flexibility and adaptability must be maintained at all times even at the expense of quantitative achievements. Plans for production must be geared to the strategy of war, which includes the demands of our Allies.

We have also the problem of equipping our Allies with practically every military essential. We are spending nearly $10 billions per year on lease-lend $8,252,-733,000). We send 15% of the total military output of our plants to the Allies, of which 30% is in planes and tanks. Of the total dollar value of materials sent to our Allies under lease-lend, 56% is in military equipment, foodstuffs, and industrial equipment. We sent to our Allies last year 7½% of our foodstuff. In textiles, for example, we send wool and manufactured woolen materials; ¼ of our manufactured cotton goods output goes to lease-lend in practically finished form. Now that we have men in North Africa, we have to supply the natives there with food, clothing, and other materials, which we had not counted upon. Flexibility and mobility of productive capacities are vitally essential. Food now begins to loom up as a material as critical as in the last war, when we were told by slogan that "Food will win the war."

The staggering demands placed upon us have brought critical shortages in machinery, in materials, and in manpower. These problems are solvable and they will be solved. No longer do we speak of unsurmountable "bottlenecks" as we did early in the period—the term has become opprobrious. Mobilization for a total, global war must be complete and embrace both producer and consumer; hence nothing can be permitted to remain "critical" for very long. We have at last come to the full realization of this fact, which will make the third stage possible.

The third stage is a complete over-all balanced production for total war. This is the painful stage, in that every individual plays a more active part and is called upon for greater sacrifices than ever before.

The amount authorized for war purposes as of the first of December was the staggering sum of $238 billions, or 10 times what the World War cost us. Donald Nelson is shooting at a doubling of war equipment this year; in dollar value this would amount to about $90 billions as compared with about $50 billions last year. If this is accomplished, it will mean that "M" day has come for every person as well as for industry. Goals as high as have been set cannot be achieved except by many sacrifices on the part of everyone. We shall soon be saying, "We can't have guns *and* butter," as did the Germans for several years before they started on their path of conquest.

In view of the size of the military task before us we must not—and dare not—say that the goals will not be accomplished. Losing the war is unthinkable and unspeakable to us. It cannot be won, however, by blueprints! It must be won by material achievement and accomplishment. These terms are synonymous with sacrifice.

Review of Prices

It is well known that prices of some commodities advanced immediately after the declaration of war in Europe. Rising prices are necessary complements of war. Dislocations and disturbances of supply-and-demand relationships are reflected in prices. If the disturbances are war-generated, the trend of prices is always upward. Some prices have a tendency toward firmness even in a war economy, but the more volatile ones respond quickly to war stimulation.

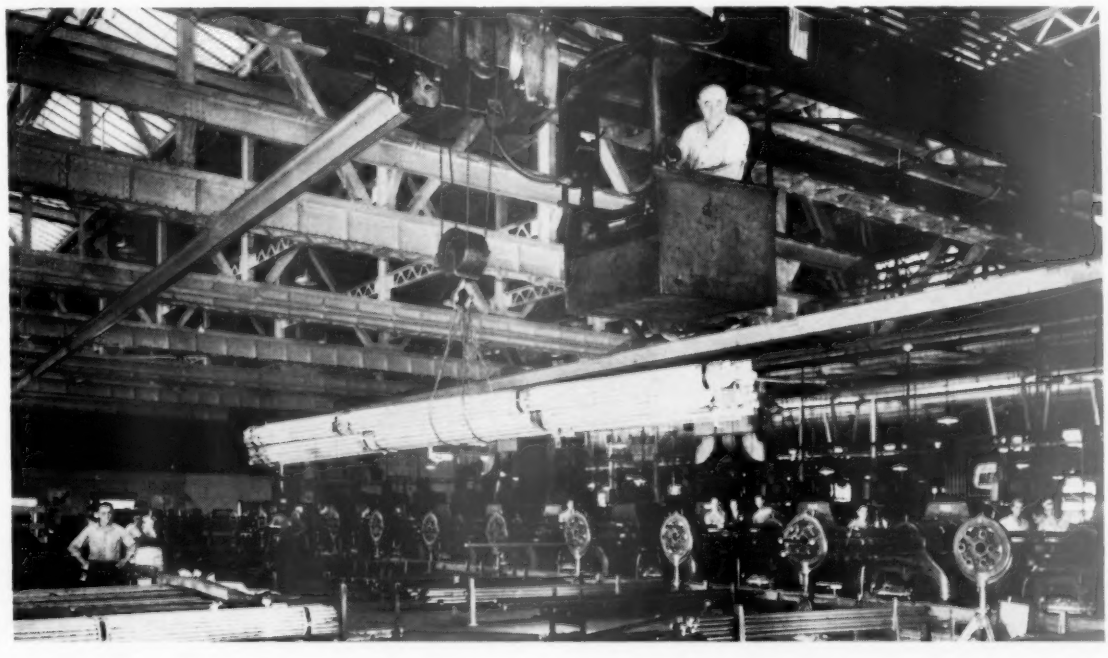
We found in the OPA that prices rose for the following reasons:

1. Actual shortage
2. Heavy forward buying
3. Hoarding
4. Increased production costs
5. Profiteering

Any one of these reasons, or any combination of them, may do irreparable damage to the economy as well as increase the cost of the war.

The last war cost us about $32 billions. Of this amount, $13.5 billions was not embodied in guns, ships,

Photographs by courtesy of Stewart-Warner Corporation



Vast plant expansions for the production of war materials will have to be reconverted to peacetime uses.

The enlistment of thousands of women workers in war production will pose a serious problem in post-war readjustment.

and ammunition, but represented an added cost due to inflation. The rise in prices alone from September, 1939 to April, 1942 of goods entering into the war increased the cost of the present war by more than the total cost of the last war. Had the trend of price advance been allowed to continue, it would have added at least $50 billions to the cost of the war by the end of this year.

Obviously this runaway inflation could not be permitted. The OPA—the agency for price control—has met with marked success in so far as the price indices are concerned. When one considers the lack of power of the Office and the strength of the opposing pressure groups, it is a wonder that anything was accomplished. My observations and experience lead me to say that the success in price control was due in larger part to the cooperation of trade and industry. It is true that many businessmen *do* remember the cataclysm of deflation and business failures at the close of the last war. In the early days of OPA, compliance was almost entirely voluntary; the Office had no authority to make any measure "stick." In general, business and industry submitted to the regulations knowing full well that the measures would not stand a severe legal test.

While Congress and the pressure groups harangued over a price bill, many prices got nicely started on the spiral of inflation and irreparable damage was done to our economy. By the time the bill was signed on January 30, 1942, the (B.L.S.) index of the cost of living had advanced 14.6% and certain items in the index, such as food, had advanced 23.7%. A two-year summary (B.L.S.) of the effects of war on prices shows an increase of 25% in wholesale commodity prices, and a 21% increase in cost of living; retail food prices are up 30% and the index of wholesale farm prices is up 40%.

The fight against inflation is a bigger problem than that of increasing production. The danger of inflation is inherent in a war economy. Practically every factor involved in waging a war becomes a cause for inflation. More wages, less goods, are food for inflation. The OPA has had a hard fight with the forces of inflation. The Office has not been able to keep prices from rising and it was never expected that it could. The Emergency Price Control Act of 1942 which created the Office as it now exists is in itself inflationary. It was a half-hearted attempt at regulation but omitted the two most essential elements necessary for effective control, viz., control over wage costs and over farm prices.

Despite the handicap placed on the Office from the start, it has achieved marked success. The rapid rise in the wholesale price index was abruptly halted, and advances in the cost of living were confined to a relatively small percentage advance. Considering the absence of control over farm prices, most of which are in reality food prices, one must admit that the OPA has done a fine job, statistically speaking, in controlling the indices.

It must be pointed out, however, that not all inflation is to be found in price changes. There has been much product deterioration, which is "hidden inflation" and which affects the consumer just as adversely as price inflation. The OPA never had any authority to force producers to supply identical articles which were to be sold at the stipulated ceiling prices. Frequently the schedules demanded "substantially the same quality and workmanship," but this was an indefinite and an unenforceable order. Any "hidden inflation" affects materially the costs to the consumer but does not show up in the indices.

In addition to the inherent weakness in the laws for controlling prices certain problems arose in the administration of the Office itself. Just as those in charge of production did not always have smooth sailing, as did OPA encounter many crosscurrents.

Skilled technical manpower for price control is as essential as skilled labor in production. Such manpower was hard to get. Likewise no one had time to think through to its ultimate conclusion the effect of price control on production. Work had to be done under terrific pressure, again proving true the adage "haste

makes waste." Many schedules were needlessly complicated and involved. They were not written in understandable language, and often were either too broadly inclusive or inadvertently exclusive. When one couples the schedules themselves with the inadequate job of "selling" the plan and purpose to the public, the reasons for noncompliance become apparent. Intelligent cooperation can be enlisted only by carefully developed public relations. The American people can be led—they cannot be driven.

All things considered, it is my opinion that the OPA has accomplished more than we had any right to expect. We must not expect the functioning of an agency to compensate for the inadequacies of the law which created it.

Outlook for Production

While the foregoing remarks have dealt with a *review* of the economic situation to date, the *outlook* is not intended to be confined to 1943 or even necessarily to the end of the war, which cannot now be foretold.

Some reference has already been made to the production demands which will never become less until the war ends. Measured in costs, we are now spending for war purposes at the rate of over $6 billions per month, as compared with a civilian expenditure for goods amounting to $500 millions per month. The Civil War between the states cost $3,348,000,000, which is equivalent to expenditures for about 1 1/3 weeks now. The total cost of World War I was the equivalent of about 5 months current outlay.

In November of last year, more was spent for war than was spent for total governmental purposes in any year prior to 1934. The *war materials* output last year equaled the total value of *all* manufactured goods in the year 1939. In one year (1942) our per capita expenditures for war outstripped those of Great Britain which had a two year start on us. Our per capita expenditures here were $540, against $440 in Great Britain and an estimated $340 in Germany and $40 in Japan.

All this vast expenditure means a tremendous increase in military goods. Industry has long since passed the "tooling-up" stage, and has reached, or soon will reach, its full, augmented, plant capacity. The transition from peacetime economy to wartime economy is almost finished. This means more war materials but less for civilian consumption.

From now on, the civilian will be the forgotten man, if he is not already that. His orders are to work harder, produce more, and consume less. As yet he has not felt the pinch of total war, but on the contrary his gains have far exceeded his losses, temporarily at least. Many of the diseconomies of war spending must be made up by economies of consumption by the civilian. If this can be shown to be the cost of preserving our way of life, we will meet with complete success. The materials will be supplied and the manpower will be available for production.

Outlook for Price Control

At the same time that we want the index of production to increase, we want the index of prices to fall. Since this is an impossibility, we want prices to hold on an even keel or, if they must advance, to do so at a "snail's pace." The outlook for price control is not bright. We shall probably see "controlled inflation" rather than "controlled prices." Price control machinery as it stands today is ineffective for three fundamental reasons:

1. Wages are not under definite control.
2. Agricultural prices are not frozen. The pegging of agricultural prices and parity loans are still in effect.
3. The Federal fiscal program is inadequate to cut the supply of spendable funds.

The control of prices or inflation is complicated by (1) baffling economic issues and (2) the selfish interests of political pressure groups who want more at the expense of the price level and the welfare of all. The freezing of wages as a means of controlling a component of price is loaded with political dynamite. The farm bloc successfully obstructs measures for controlling farm and food prices, and the administration and Congress spend months arguing over a tax bill. The only way to reduce the spendable surplus, which is a powerful force in rising prices, is by enacting a severe fiscal policy, which has not yet been done.

It is estimated that the supply of goods for civilian use this year will be $25 to $40 billions less than the amount of money available for their purchase. This "inflationary gap" practically guarantees higher prices for the few remaining goods that are available for purchase. Higher prices mean higher costs, and higher costs mean higher prices; thus the destructive spiral of inflation has overtaken us. It is infinitely cheaper to pay the price to avoid inflation than to experience an inflation catastrophe. The danger of inflation is second only to that of losing the war. It would be evidence of a loss of grip by the government. It would symbolize political, economic, and social disintegration.

We are, therefore, living in the midst of the most prosperous and yet the most dangerous year in the economic life of the nation. Both the prosperity and the danger are war-generated: both have their origin in governmental war expenditures.

The Postwar Outlook

Just now it is both popular and respectable to talk postwar plans. Postwar plans should occupy at least a part of the attention of business, for it must have a sound plan on which to rebuild. Industry was not interested in any postwar thinking until about the last half of 1942. As soon as its war production job seemed to be licked, a change occurred. Production is now streamlined to a considerable degree, and the psychology of deflation and postwar depression, prevalent in the first six months has changed to that of postwar inflation and boom. Again, the keys which unlock this riddle are held by a combination of forces of government, industry, finance, and labor. Private enterprise, free capital markets, and individual initiative have made our industrial machine. They must be enlisted in the postwar period.

Besides these groups we have the services of the finest scientists and research laboratories in the world. Scientific research is itself a major industry which spent last year in excess of 300 million dollars and employed over 75,000 people. Miracles in the production of consumers' goods may logically be expected as was the case in producing war materials. There is every reason to believe that science and industry may attain a level of constructive consumption just as high as that which they have reached in destructive production.

In the postwar period the government must help. There will be huge savings and a frantic potential demand for goods. Machinery for credit expansion plus the installment credit potential spells inflation if controls are relaxed.

At the close of the last war there were three stal-

warts that contributed most to postwar recovery. They were railroad rehabilitation, automobile manufacture, and building construction. Each has been shelved for the duration. They will again be the backbone of recovery in the postwar period—and when you add to them the unpredictable possibilities in synthetic rubber, plastics, nylon and synthetic fabrics, light metals such as aluminum and magnesium, electronics, airplanes, new types of food, air and light conditioning, and so on, the future of both production and consumption looks very bright. Every war leaves the scientists with new playthings. The last war left us the electron tube, from which in 2 years came the radio, in 10 years the talkies, and in 20 years television. The scientist calls the electron the basic building block of the universe. Science is putting it to work and million dollar industries are springing from it. From the laboratory there will come many other products which will make for a better life.

In the postwar period industry must have a systematized development. Articles and parts must be fitted into a coordinated scheme of things. Charting the return to peace will demand that high levels of employment be attained and maintained. Production must be balanced with the demands for goods at prices which will guarantee both production and consumption. One of the reasons why the shift from civilian production to war production was brought about so efficiently was the progress of technology and progress in management. Just as the long researches of the '30s thus bore fruit, so the researches of the '40s must be applied to creative effort for peace. The end of the war will find us with an industrial plant valued by the Department of Commerce at about $50 billions, to which we may add around $20 billions worth of new plants built in the last three years. This must be used. The changeover will be costly and will require the efforts of many people, but when it has been achieved there will flow from it a supply of goods which will provide for the highest standard of living.

The machine, the plant, the trained, scientific mind, the materials, and the manpower are all here. They must all be coordinated. The problem of coordination requires very serious thought and deliberation. It is a problem on which business should be thinking. Business survival demands it. Likewise government—national and state—should use the same foresight. However, the solution cannot be arrived at independently. It must be arrived at jointly and positively.

We have but to look to the negative attitude at the close of the last war when soldiers returned—no jobs! War orders cancelled—no work! No demand for the products of industry—workers let out! Prices were unfrozen, priorities and rationing abolished, and pent-up inflation released. This set the stage for the depression—boom—depression of the '20s. We have the same, identical pattern before us at the end of this war—but many times worse. We may have nearly 10 million men returning from war and hunting work. We may have as many as 20 million war workers to transfer to production for peacetime consumption, in addition to the 19 million persons now engaged in production for civilian use. One out of three persons now employed (exclusive of agriculture, those self employed and a small number of unemployed) are producing direct materials for war, and of those employed 34.4% are women. Obviously many large economic problems are involved in labor alone.

It is estimated that by the end of 1943, there will be an unused buying power consisting of $24 billions in war bonds, $8 billions in potential installment credit, and a total of $134 billions in cash and credit available for spending by corporations and individuals as they may desire. The investment in war bonds will increase as the war goes on as will the other spendable factors. It is probable that the government will continue to spend around $130-$135 billions annually for several years after the war even though the war should end in 1944. The sum available for individual spending plus the government expenditures represent a tremendous potential for either a disastrous inflation or a period of protracted prosperity which could last for many years.

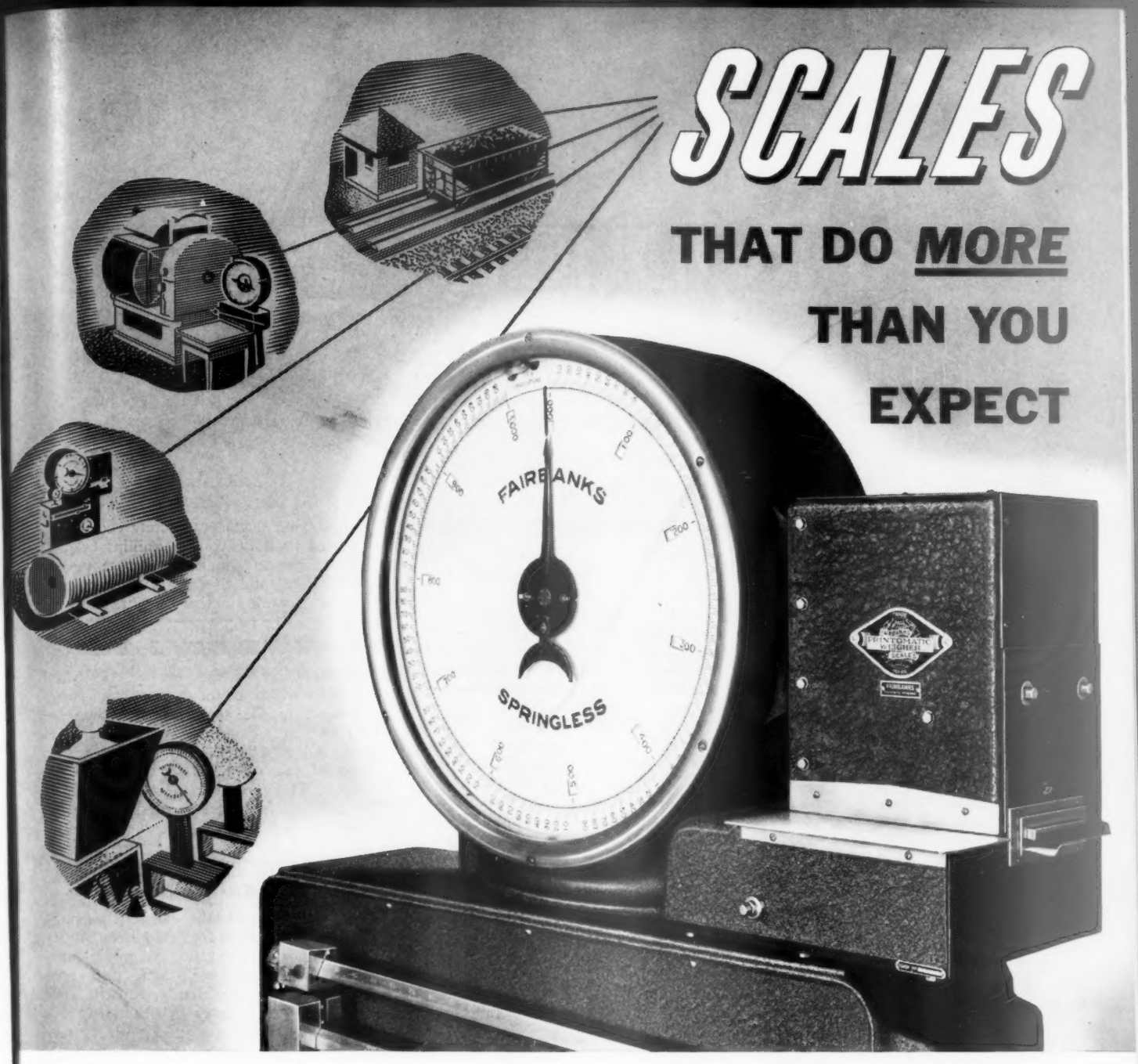
The answer to which course we take depends upon successfully controlled prices during the war and a skillfully balanced production after the war by tapering off government spending as industrial rehabilitation takes place. Millions of families will be in the market for tires, automobiles, furniture, radios, clothing, refrigerators—an endless list of consumers' goods. There may be as many as 30 million homes to be re-equipped and a large number to be built; also endless slum clearance and apartment units will be going up. Unquestionably the demand is there; it might become a raging torrent but if coordinated and controlled it may prove to be a source of great economic power which would last many years. Foreign demands should also be reckoned with—a consideration which makes the total demand for goods even greater.

Therefore, the next real challenge is the return to peace. We cannot have an economic Pearl Harbor. Likewise, we do not dare admit failure in production for peace. It would be a sign of ingratitude to our returning men and an admission of plain stupidity. Leaders in business must join with the government in planning positive measures. I am hopeful that something constructive may come out of the present move by business in the Committee for Economic Development which is getting under way. There is much that they can do in an exploratory way.

At the present time most businesses are concerning themselves with internal problems rather than with external developments. This is natural but not entirely advisable. We must implore the businessman not to allow the politician, the demagogue, or the bureaucrat to do his thinking. Likewise the businessman must see that the government does not do his thinking for him, or he will soon find he has ceased to be a businessman. He must resist any sweeping changes in the economy which would amount to a reconstruction and yet be made in the name of the war or postwar needs. It is apparent that there are some who are interested in bringing about such reforms, so called. Plans for great industrial concentration would wipe out thousands of small business enterprises and eventually break up accustomed channels of distribution, thus eliminating thousands of small retailers and businesses. Care must be taken not to allow political strangleholds on business which would effectively prevent the systems of private enterprise from reasserting its traditional vigor.

The businessman must face the problems of peace realistically and not emotionaly. While his first impulse is to throw off the multitude of government restrictions which amount to obstructions and restore complete economic freedom, he must proceed cautiously and thoughtfully. The challenge of coordination for peace is as great as the challenge of production for war.

The orderly transition from total war economy to production for lasting peace and prosperity is the next real challenge. Achievement of this goal will more than amply repay all the efforts put forth by all of us.



OF course, Fairbanks Scales are big, husky, and accurate. You have a right to expect these things in *any* good scale — and particularly of Fairbanks Scales with the world's broadest scale manufacturing experience behind them.

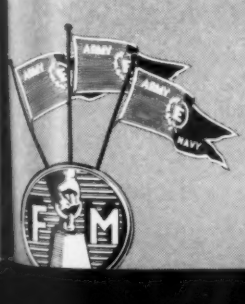
The feature about Fairbanks Scales that may surprise you the most, is their ability to do things you *don't* expect of scales.

Here are a few of many jobs done by Fairbanks Scales:

- They count small parts — more accurately than manual counting
- They weigh carloads of coal in motion and make a printed record of each weight
- They automatically control paint ingredients
- They automatically control aggregates
- They "keep the books" in steel plants, making printed records of incoming and outgoing shipments
- They keep accurate records on chlorination in water treatment
- They record the *flow* of liquid chemicals
- They guard secret formulas in compounding
- They control batching in bakeries
- They prevent disputes by eliminating the human element in weighing.

AND all of these things, only the beginning of the story, they do automatically and mechanically thereby eliminating human errors.

How Fairbanks Scales can be fitted into your production flow to speed up operations and eliminate errors may prove to be the most interesting discovery you ever made. Investigate now. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Illinois.



FAIRBANKS-MORSE

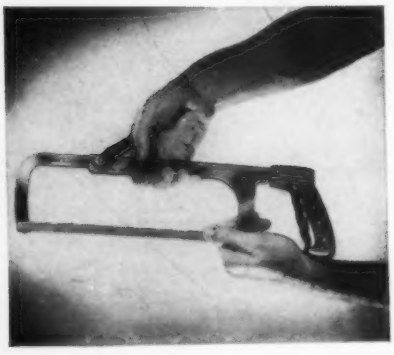
DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
SCALES
WATER SYSTEMS
FARM EQUIPMENT
STOKERS
AIR CONDITIONERS
RAILROAD EQUIPMENT

FAIRBANKS SCALES

Scales

New PRODUCTS · IDEAS

LEVER-LOCK HACK SAW FRAME



■ A cam-action, lever-lock sets up and releases the blade in new type of hack saw frame made by Clemson Bros., Inc., Middletown, N. Y. Straighter cuts and reduced blade breakage are said to be benefits of the high tension developed. Frame may be adjusted for 8″, 10″ or 12″ blades, and is available with either pistol grip or straight handle. Frame cannot jacknife or come apart accidentally with blade removed, and there are no loose parts to fall off.

SHELL COATING EQUIPMENT

■ New line of high-speed, automatic shell coating equipment is announced by The DeVilbiss Co., Toledo, Ohio. Every unit is engineered to do a particular job, and the line is designed for wide adaptability. It automatically paints bombs, shell, shot, grenades and cartridge cases of all kinds in sizes ranging from 20 to 155 mm. Some types are for exterior work only, while others paint both inside and out. Handle all of the finishing and coating materials commonly specified for ammunition.

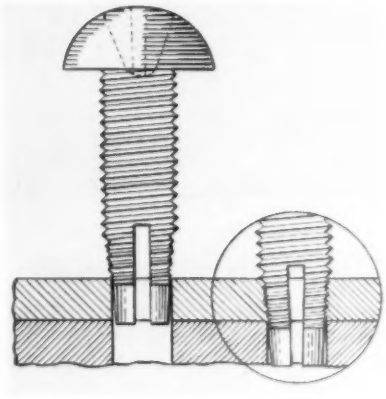
SYNTHETIC REPLACES RUBBER

■ Haydenite is the name of a new synthetic developed by the Stanley Chemical Co., East Berlin, Conn., which is replacing rubber in army raincoats. Manufacturer states that the new product is better than rubber, cheaper than many waterproof coatings, and easy to apply.

SUPER QUENCHING OIL

■ Quenching oil said to have a cooling speed more nearly approaching that of water through the higher temperature ranges, is announced by the Gulf Oil Corporation. New product is known as Gulf Super-Quench. It is claimed to have minimum tendency toward distortion and cracking, and to have improved physical properties of steels tested. Tests, according to the Gulf Co., showed that conventional oils gave steel hardness not greater than 40 Rockwell-C, largely on the surface, while the Super-Quench developed a hardness in excess of Rockwell-C 58 throughout entire cross-section.

NEW TAP SCREW



Pat. No. 2,292,195

■ New tap screw introduced by Continental Screw Co., New Bedford, Mass., is said to eliminate difficulties encountered in applying and driving self-tapping screws in metal or plastic fastening operations. Tapered, smooth pilot point below tapered threads automatically effects self-aligning and holding action, and screw cuts threads accurately in correct alignment. The slotted opening is said to insure quicker, easier and more accurate tapping or self-thread-cutting action. It also gives the advantage of "spring" or yielding when screw is fitted into hole and during self-threading action, and enables a screw to more accurately be driven into openings of varying diameters. Screw comes with slotted head or Holtite Phillips head. It is claimed to eliminate separate tapping operations, and that screw remains tight under loosening action of vibration.

NAVAL BRONZE FILES

■ New line of files for use on Naval bronze which is tough and much more difficult to file than ordinary brass or bronze, is announced by the Nicholson File Co., Providence, R. I. Teeth are so shaped that they will not dig into the metal. This results in a good finish and counteracts any tendency of the files to run off to one side.

MAGNIFIER FITTED WITH FLUORESCENT LAMP

■ Inspection tools that combine magnification and shadow-free fluorescent lighting, styled "Flud-Lite" Magnifiers, for bench work and for portable inspection, are annouced by the Stanley Electric Tool Division, The Stanley Works, New Britain, Conn. They are fitted with fluorescent daylight lamp, equipped with high quality 5 inch lens having focal length of 13 inches, and operate on alternating current, 110-120 volts, 60 cycles. Unit for use on bench, machine or other stationary installation has steel base which can be removed for permanent anchorage.

VIBRATIONLESS SANDER

■ New electric portable sander for heavy duty service announced by Sterling Tool Products Co., Chicago, is characterized

(Continued on page 104)

When writing Tube Turns please mention Purchasing

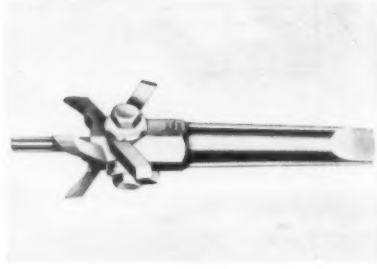
(Continued from page 102)

as being a balanced and counterbalanced vibrationless unit for use by men or women operators. Orbital action produces maximum cutting, leaving smooth surface on wood, composition or metal. With felt or cloth matrix may be used for lapping and polishing.

SHELLAC SUBSTITUTE

■ New Wood finish known as V-Lac has been introduced by the 20th Century Paint & Varnish Co., Brooklyn, N. Y., to replace the use of pure white shellac. Manufacturer states that it looks like white shellac, is more waterproof, will not turn white, and is more durable; can be thinned with benzine, mineral spirits or turpentine, and dries within two hours; can be brushed or sprayed.

THREE-BLADE HOLE CUTTER



■ Three-blade adjustable hole cutter for cutting precision holes ¾″ to 4½″ in diameter up to ¾″ thickness in metals, plastics, hard fibre, pressboard and uneven surfaces, is announced by Robert H. Clark Co., Los Angeles, Calif. Cutters are designed for use in electric drills, pneumatic motors, drill presses, lathes and milling machines, and will cut curved surface through heavy steel. Finish grinding or filing is said to be unnecessary when holes are cut with this tool.

BALANCING ROTATING PARTS

■ Easy to operate machines for accurately determining the disturbing centrifugal force or force couple that is the cause of excessive vibration of rotating parts, are announced by the Bear Manufacturing Co., Rock Island, Ill. Machines are said to show the angular position and the value or amount of unbalance at the same time. Manufacturer states that with these balancing machines it is unnecessary to static balance before a Dy-Namic balance test can be made. The machines are available in a variety of models,—bench, large floor and pit type.

INTERCOMMUNICATING SYSTEM

■ This newly developed system manufactured by the Talk-A-Phone Manufacturing Company, Chicago, Ill., incorporates in its design a feature very vital to our national security, complete privacy perfected to the extent that when two peo-

(Continued on page 106)

YOUR *Scrap* CAN POSTPONE 1950

FROM these reserves, two extra pounds of ore must be used for each pound of scrap you fail to turn in.

Vast as they are, America's precious iron deposits are not limitless. Considering the terrific drain on them now for those extra pounds to win the war, experts say our high-grade Lake Superior district reserves will be exhausted in a few more years . . . by 1950 . . . or sooner.

So the steel industry needs every pound of scrap you can muster . . . today, next week, next month, every month. Scrap is vital for Victory over the Axis . . . and vital also, to conserve the natural resources we shall need for reconstruction after Victory.

THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN, OHIO

THROW YOUR SCRAP INTO THE FIGHT — TRADE MARK — YOUNGSTOWN

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

When writing The Youngstown Sheet and Tube Company please mention Purchasing

(Continued from page 104)

ple are speaking it is impossible for any third party to "listen in" to either conversation.

This system is made up exclusively of master stations and permits a number of two-way conversations to be held simultaneously. Systems may be built up progressively beginning with two master stations to any amount of stations desired.

Units have amplifier of super sensitive design which delivers a maximum output of 2¼ watts and permits operation with undiminished power and efficiency with the units as far as 3000 feet from one another. All-Masters available in systems consisting of 2 to 10, 20, 30, 40, 60, 80, etc. stations.

FORMS DUPLICATOR

■ Old Town Dupli-Form is announced by the Old Town Ribbon & Carbon Co., Inc., Brooklyn, N. Y., as a means for simplifying the printed form problem and to save printing, time and money in connection with multi-copy forms. Combines a sheet of spirit duplicating carbon and sheet of master paper on which form is printed. Typists fills in form on ordinary typewriter, running off copies on duplicator. Copies are said to be strong and clear. Typographical errors cease to be a headache. Letterheads and bulletins can be reproduced as name plate of user can be incorporated.

STEAM-JACKET PUMP

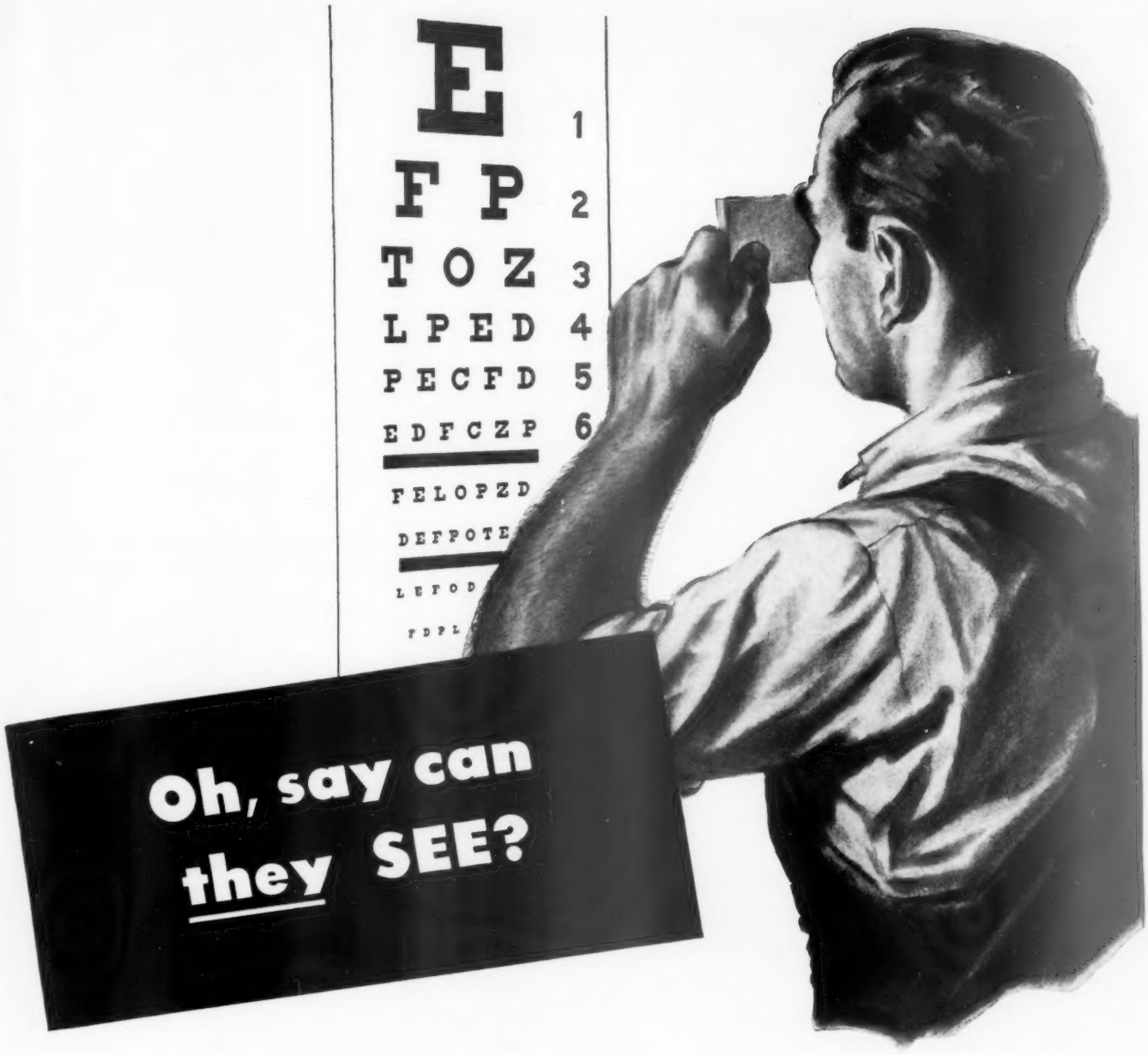
■ A simplified steam-jacketed pump has been put into production at the plant of the Blacker Pump Company, Grand Rapids, Michigan.

A number of these units have been installed in war production plants for handling such materials as palm oil, lard, tar, greases and similar liquids that must be processed or transferred while hot.

These heads are made of cast semi-steel, with threaded intake and exhaust steam ports, and drain plugs. They are suitable for steam pressures up to 125 lbs.

Standard Blackmer units in capacities from 20 to 700 GPM and pressures up to 300 psi are available with the steam-

(Continued on page 108)



Nearly 40 per cent of industry's younger workers have eye defects! The eyes of all employes suffer strain and fatigue under inadequate illumination. Read how MILLER LIGHTING can help you eliminate plant accidents, layoffs and lost time . . .

Under today's terrific pressure men with perfect vision work fast and accurately only with adequate illumination. But remember...a high percentage of industry's workers do *not* have perfect vision! They can do all expected of them...*all they want to do*...without accidents or slowdowns, only if you help them see clearly and sharply at all times.

MILLER 50 FOOT CANDLER or 100 FOOT CANDLER, the *original* continuous wireway fluorescent lighting systems, can provide your war-manpower with adequate, man-made *daylight* for better, faster, safer production. Or, MILLER can provide modern incandescent or mercury lighting, depending on your plant's set-up and particular problems.

Because of this the MILLER field engineer is in an unbiased position to work with you right now . . . to cooperate intelligently in the fine work you are now doing to help speed Victory.

THE MILLER COMPANY · MERIDEN, CONNECTICUT

ILLUMINATING DIVISION • **OIL GOODS DIVISION** • **ROLLING MILL DIVISION**
Fluorescent, Incandescent, Mercury Lighting Equipment
Domestic Oil Burners and Liquid Fuel Devices
Brass and Phosphor Bronze in Sheets, Strips and Rolls

WAR CONTRACTS DIVISION
War Materiel

MILLER
Since 1844

When writing The Miller Company please mention Purchasing

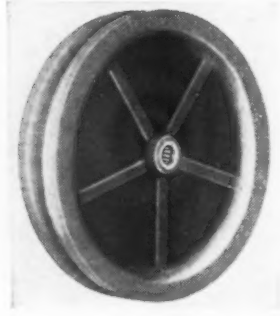
(Continued from page 106)

jacketed head. They are furnished with either single or double reduction gear drive and as single or multiple pump units.

MILLING VALVE-CLEARANCE POCKETS

■ Three-spindle, hydraulic machine for milling valve-clearance pockets in aircraft engine pistons, has been created by the Snyder Tool & Engineering Co., Detroit. Production was projected at 100 pieces an hour, minimum, at 85% efficiency, and in actual use the machine is said to deliver triple the production obtainable with a single spindle machine. With the Snyder machine the part is handled but once to complete both cuts. Geneva index table used as the basis of the automatic cycle mechanism on this machine can be used on other machines with three or more index stations.

DUAL-DISC PRESSED WHEEL FOR PORTABLE EQUIPMENT



■ French & Hecht, Inc., Davenport, Iowa, announce a strong, light weight, roller bearing Dual Disc Pressed wheel for service where rubber wheels were formerly used. The wheel is 10" in diameter, and tire is grooved for added strength. It consists of two pressed steel discs, steel rim and hub, welded into sturdy unit. Fair tire width permits travel over soft terrain. The wheels are said to meet all requirements for light and medium portable equipment.

NEW CLEANING POWDER

■ Bull Frog Saf-T-Klenz is being introduced by the Berman Chemical Co., Toledo, as an effective cleanser for factory windows, and along with its effectiveness for removing rust, soap oils, discolorations from shower room walls, floors and fixtures, it is claimed to be a deodorant. It is said to contain nothing harmful to the skin, clothing or drains, and to create no fumes.

THREE VALVE TILT TRAP

■ A new three-valve tilt trap for variable pressures on lifting service has been added to the line of deaerating systems for steam drainage and boiler feeding made by the W. M. Acker Organization, Inc., Cleveland, Ohio. The sturdy construction

(Continued on page 110)

We want to thank you, the many thousands of you who in the past few years have made Johnson's Wax-Fortified Paints and Enamels one of America's fastest selling brands. But now we must discontinue the manufacture of this most efficient paint. Certain of its ingredients are urgently needed for more important work in the war program.

To take over this job of protecting your surfaces in the most efficient manner possible today at the lowest cost, S. C. Johnson & Son, Inc., have developed Johnson's War-Formula Paints — retaining as many as possible of the outstanding advantages of Johnson's Wax-Fortified Paints.

AND NOW WE WANT TO TELL YOU ABOUT THESE

War-Formula PAINTS

. . . Specially Developed for

- *Mills*
- *Foundries*
- *Machine Shops*
- *Warehouses*
- *Offices*
- *Factories*
- *Power Plants*
- *Machinery*
- *Shipyards*
- *Hospitals*

These War-Formula Paints and Enamels are made by skillful blending of fine paint resins. They have the endurance and maintenance economy so needed today.

Johnson's War-Formula Paints require no special preparation or care in application. Brush or spray them on old or new surfaces of wood, brick, metal, plaster or any painted or unpainted surface.

Send for full particulars today. These paints and enamels are specially made to meet present maintenance problems.

S. C. JOHNSON & SON, Inc.

Industrial Maintenance Division, Dept. P-33
Racine, Wisconsin

"Send for your copy of this catalog today!"

S. C. JOHNSON & SON, Inc., Dept. P-33
Industrial Maintenance Division, Racine, Wis.

Please send me a copy of your illustrated booklet, "Johnson War-Formula Paints," giving complete information and specifications for the use of Johnson's new War-Formula Paints and Enamels.

Name _____

Position _____

Firm _____

Address _____

City _____ *State* _____

Buy United States War Savings Bonds and Stamps

When writing S. C. Johnson & Son, Inc. please mention Purchasing

(Continued from page 108)

of female trunnion supported on center bearings, and male steam and water ends which are relieved of any weight carried on the packing, is the same as that used on the basic Acker return and non-return tilt traps.

MAGNETIC STARTERS

■ A new line of alternating-current combination magnetic starters for full voltage starting of induction motors up to 7½ hp has been announced by the General Electric Company.

Available only in NEMA sizes 0 and 1 as yet, these starters consist of a fusible motor-circuit switch and a magnetic starter incorporated in one compact unit to conserve space and installation time, to provide greater protection for equipment and operators, and to improve appearance. Also, to facilitate mounting groups of the starters close together, the operating handle is projected through the front rather than the side of the case.

The starters are enclosed in general purpose, cabinet-type, all-welded steel cases. The flush-type doors of the cases close into deep L- shaped flanges, making a particularly tight joint between the case and the cover. An interlock prevents opening the door until the switch is OFF.

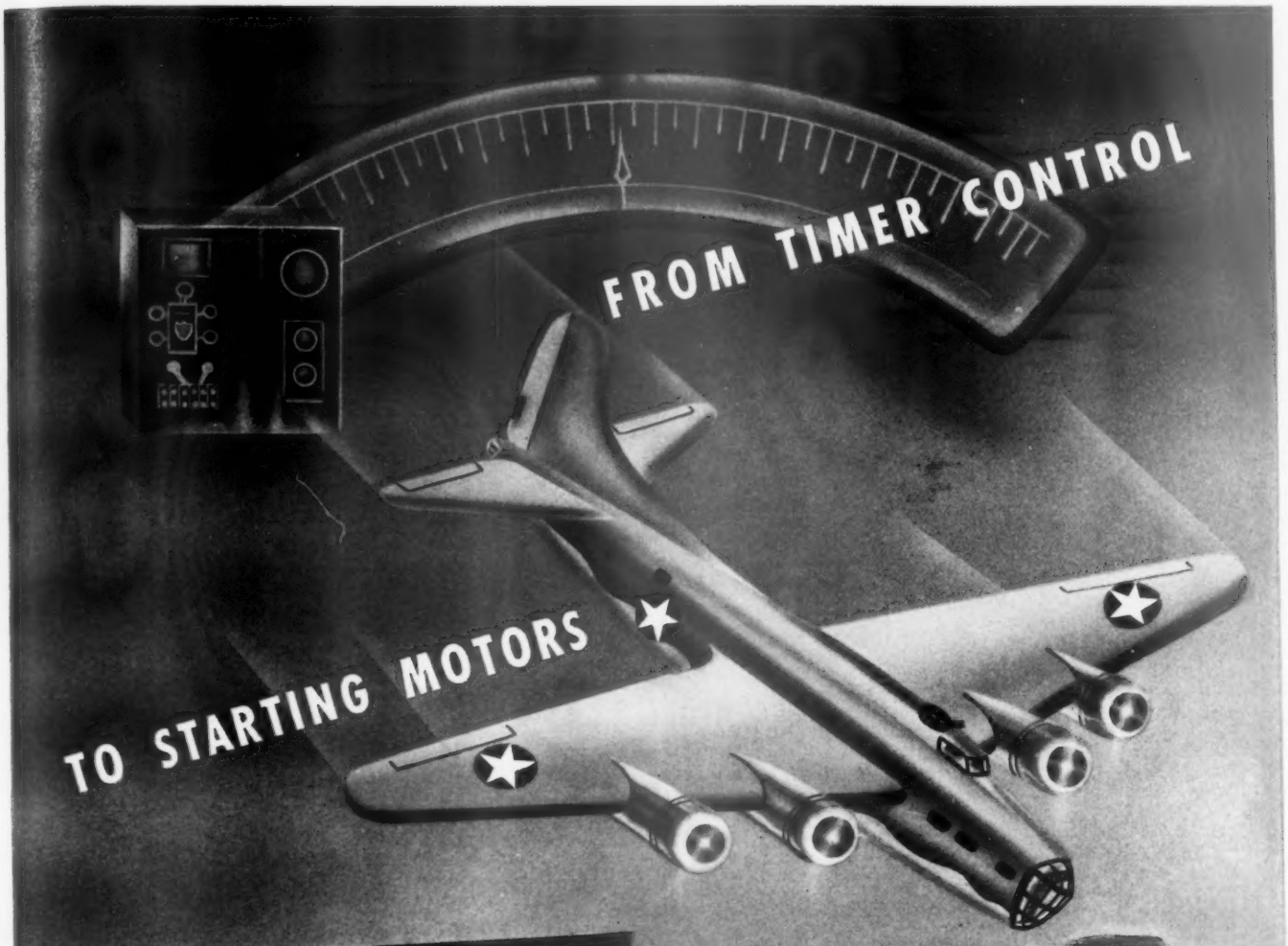
HEAVY DUTY POLISHER AND BUFFER

■ New heavy duty polisher and Buffer with motor mounted inside the base permitting the use of standard open motors in place of totally enclosed, is announced by The Hisey-Wolf Machine Co., Cincinnati, Ohio. Available in two types, single spindle—single motor, and two spindle—two motor, with motors from 3 to 10 h. p. Can be furnished with housing about the spindle extension, with a ball bearing directly adjacent to the wheel.

STACKING BOX CARRIER

■ Heavy duty carrier designed especially to handle a column of self-nesting boxes of finished parts, scrap, castings, etc., is being introduced by the Ernst Carrier Sales Co., Buffalo, N. Y. Built in wedge at bottom of lift post slides under stack eliminating the use of a skid. Unit is easily operated by one man. Forward tip-

(Continued on page 112)



RELAYS by GUARDIAN

Giving split-second accuracy to timing devices, "Relays by Guardian" are widely used in Thermatrols . . . Pyrometers . . . and dozens of other electrically operated instruments. But the war has brought thousands of new uses, calling for greater precision than ever . . . for firing and timing guns . . . for controlling battle radios . . . for swiveling "Fortress" turrets . . . for doing hundreds of war control jobs. One of the newest Guardian developments is . . .

B-8 . . . NEW LIGHTWEIGHT SOLENOID CONTACTOR

Built to U. S. Army Air Force specifications for aircraft engine starting motors. With variations in mounting brackets and terminals the B-8 will meet intermittent duty specifications of the B-4, B-6A and B-7A Contactors. Contacts are rated at 200 amperes and will not chatter on voltage drops caused by starting current surges. "Pull-in" voltage is 6 volts as compared to 18 volts on contactors with which the B-8 is interchangeable.

Write for B-8 Bulletin for further information. Or for SC-25 Bulletin for technical data on continuous duty contactors.

B-8 SOLENOID CONTACTOR
On ten thousand units this new design saves over three tons of critical materials.

GUARDIAN ELECTRIC

1635-C WEST WALNUT STREET CHICAGO, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

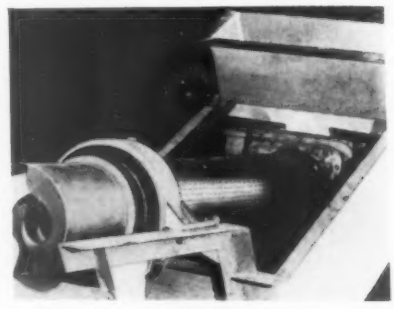
(Continued from page 110)

ping or swaying is eliminated by adjustable clamp that lowers over the back edge of the top box, and side sway is eliminated by a reinforcing bar running diagonally from top of post to the base.

SOLVENT FOR REMOVING SALT AND BUNKER C OIL

■ Gunk P-96 is the name of a concentrated self-emulsifying degreasing solvent announced by the Curran Corporation, Malden, Mass., that is said to dissolve, emulsify and remove heavy accretions of Bunker "C" fuel oil in the presence of salt water. Powerful penetrating and emulsifying action is claimed, all traces of oil are made water soluble, and degreasing surfaces are said to be particularly compatible for the application of red lead undercoat.

SPIRAL CONVEYOR FOR HANDLING PARTS FROM QUENCH



■ Spiral conveyor named Spiralveyor is announced by Salem Engineering Co., Salem, Ohio, for removing large quantities of heat treated parts from the quench. Will remove and convey parts to pickling unit at rate of 8,000 lbs. per hour. Spiral operates through perforated tube, water being tumbled from parts before they enter pickling bath.

AUTOMATIC CENTERING MACHINE

■ Two-spindle automatic centering machine for bars up to 6 feet long has been developed by Pines Engineering Co., Aurora, Ill. One chuck and one head are stationary, the other chuck and head being adjustable. Capacity of the chucks is a maximum of 5 inch diameter round bars.

ROCKER ARM RESISTANCE WELDER

Adjustable electrode tips which may be set at any angle without impairing welding position, and gauges and dials visible to the operator are features of Rocker Arm Resistance Welder for the spot welding of aluminum and its alloys, announced by Sciaky Bros., Chicago. Welding process preheats the metal, slowing down cooling and provides added protection of a "forging" pressure which is said to preclude shrinkage after the weld.

(Continued on page 114)

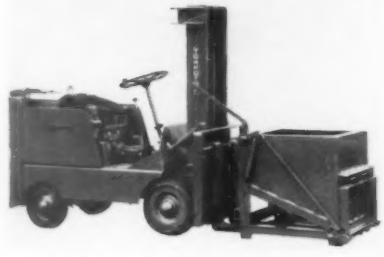
(Continued from page 112)

Pressure 3,000 lbs. between electrode tips from supply line of 90 lbs., using normal throat depth of 34 inches. Welding capacity .080″ plus .080″, 24ST Alclad. Welding stroke ½ inch, retraction stroke 3½ inches.

NEW LAMINATED PLASTIC

■ Durashield is name of laminated plastic of opaque cellulose acetate on each side of which is laminated a transparent acetate plastic, combined thickness being .050″, developed by Plastic Fabricators, Inc., San Francisco, Calif., to serve as substitute for brass, copper, or bronze nameplates, tool checks, dial faces and similar marking plates on ships, machinery, and metal equipment of all kinds. Printing is on opaque sheet. It can be die cut, stamped, drilled or made to conform to any specification as to size and shape. It is available in colors.

HOPPER FOR LIFT TRUCK



■ Hopper attachment designed for use with standard fork equipment lift trucks has been developed by Towmotor Corp., Cleveland, Ohio. Ample clearance beneath hopper allows handling without removal of standard forks. Hopper gate opened by hand lever; closed by gravity and secured by automatic latch. Hoppers may be filled independent of truck while it is busy on other jobs.

HYDRAULIC ARBOR PRESS

■ Compact piece of equipment that will answer the purpose of arbor press for inserting bushings, etc. in most any plant, is general description by the Hydraulic Machinery Co., Detroit, Mich. of its new hydraulic arbor press. Unit is rated at 6 tons with 8 in. maximum stroke—20″ of daylight and an opening of 20″ left to right. Power unit and press are en-unit, former being reinforced at the top by two I-beams, acting as the base for the assembly. Press and power unit occupy 27″ x 42″ floor space: 34″ from floor to the platen and 75″ high overall.

STANDARDIZED TAPS

■ Speeding both production and deliveries, a line of production-standardized special taps for tapping both ends of 40 and 20 mm. shell is now being produced by Detroit Tap and Tool Co., Detroit, Mich.

A year ago virtually every shell manu-

facturer had his own special tap specifications and designs for the same operations. Since the "compromise" designs were developed by the Detroit organization, over half of the shell producers whom it supplies have already adopted the new taps. This has made possible putting the manufacture of such taps on a quantity-production basis, greatly expediting delivery.

SPOT WELD TESTING MACHINE

■ A spot weld testing machine, to check the strength of spotwelded samples in the factory, has been developed by The Baldwin Southmark Division of The Baldwin Locomotive Works, Philadelphia, Pa.

For use in production line testing of light metal fabrication, this self-contained, motor-driven, hydraulic machine is extremely rapid and simple to operate.

DEVELOP SUBSTITUTE WAR-MINDED METAL

■ New metal has been added to the line of plated metals produced by the American Nickeloid Co., Peru, Ill., an electroplated zinc on steel. It can be bent, stamped, formed, drawn, soldered, and spot welded to meet most production requirements. Comes in uniformly pre-finished flat sheets in sizes up to 36" x 96", in a full range of gauges and tempers, in polished, unpolished, and satin finishes. Thickness of coating can be varied to meet specific requirements. Coating is guaranteed against cracking or flaking. As a substitute for pure nickel, tin chromium, aluminum, or stainless, it provides for important economy of vital metals for the war effort.

CIRCUIT BREAKER

■ A new type ANC air circuit breaker, designed to meet the circuit protection requirements on aircraft electrical systems, tanks, trucks, and similar mobile equipment using a direct current power supply of 28 volts or less, is announced by the Westinghouse Electric and Manufacturing Company.

The breaker affords both circuit operation and protection in one compact unit that can be installed in the same mounting space as the present toggle switch. It permits individual circuit protection at

(Continued on page 118)

SOLD FIRST

A YEAR OLD BABY NOW MAKES ITS

Thor

1/4" ELECTRIC DRILL

WITH HOUSINGS OF

THORITE PLASTIC

Check these OUTSTANDING ADVANTAGES

- MORE POWER PER POUND
- LIGHTER
- COOLER TO HANDLE
- STRONG and STURDY
- COMPACT
- GREATER PROTECTION FROM SHOCK

Under Army Contract for almost a year, Thor plastic-housing 1/4" Electric Drills now are available for general distribution.

OUT OF THOR LABORATORIES a year ago this April, there came the first successful 1/4" electric drills to appear on the market with housings of "THORITE" Plastic. First sale on these machines, went, naturally, to Uncle Sam. The Army, a year ago this May, contracted for them—and a companion machine made of pressed steel—in an unheard of quantity. Into immediate production went these new "THORITE" plastic drills to be supplied in ever-increasing numbers for duty all over the world.

Pioneered by Thor, they were the first successful major electric tool development to conserve aluminum. Actual, day-after-day use has PROVED that these Thor "plastic" drills can take it and stand up under the toughest conditions to provide dependable performance and more power per pound than any other heavy-duty 1/4" electric drill on the market today! Modernly designed with the entire case made of new, strong, specially-developed "THORITE" plastic, these Thor drills are lighter, cooler to handle, safer, sturdy and powerful.

With current military requirements nearing completion, these Thor "plastic" drills are now available to war industries.

TO UNCLE SAM!

PUBLIC APPEARANCE!

"Thorite" GEAR CASE COVER

Held in position with metal protection nut threaded directly to inner metal skeleton frame and locked against metal centerplate.

These "THORITE" plastic drills are powered by the famous Thor hevi-duty motor; have "Silent Type" over-size fan to provide abundant ventilation; and over-size pitch, alloy-steel gearing for efficient power transmission.

"Thorite" FIELD CASE

Slides over skeleton frame, is held in keyed position against metal centerplate and locked by grip handle which is securely screwed to inner metal frame.

Bearings, gears, stator, armature, centerplate and other internal power unit parts are supported on a sturdy, inner metal skeleton frame to insure close tolerance in alignment of working members.

"Thorite" GRIP HANDLE

Slides over end of inner metal frame, is held securely against field case in keyed position and locked directly to inner frame by screws.

The plastic housing does not support any working members of the machine, but serves simply as a protective covering for the inner, independent assembly of the tool.

Thor *Portable Pneumatic and Electric Tools*

INDEPENDENT PNEUMATIC TOOL COMPANY

600 W. JACKSON BOULEVARD, CHICAGO, ILL.

Branches in Principal Cities

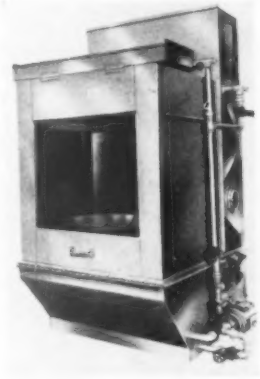
(Continued from page 115)

every operating point with little or no increase in weight or space.

The breakers have a rating of from 5 to 50 amperes at 28 volts d-c, and a 1500 ampere interrupting capacity. The unit is manually operated with a 50° swing of the handle from the "off" to "on" position.

Circuit protection is accomplished by means of a bimetallic trip. One form of this breaker has a compensating element that will stabilize the rating of the breaker within certain limits of an ambient range from −60°F to +135°F.

PAINT SPRAY BOOTH



■ Illustration shows single compartment paint spray booth, featuring rear and side water-impingement walls. "Super-turbulent" water-washed walls, through continuous and effectively pressured flow, provide unusual efficiency in spraying operations of all sizes and types. Employee health protection is assured, and fire hazards are reduced to a negligible minimum. The absence of spray nozzles eliminate the possibility of clogging; only low horse-power pumps are required. Little servicing, due to complete elimination of moving parts is necessary. Used water may be drained directly, or pumping can be arranged for distant disposal. Units are now being successfully used in many U. S. War Production Plants, and many users claim high percentage of pigment reclamation. Unit illustrated equipped with turn table and fluorescent lighting; available in single or multiple units. Aqua-Restor Division, Mayer Manufacturing Corp., Brooklyn, New York.

FLUORESCENT OFFICE UNIT

■ The Wakefield Brass Company of Vermilion, Ohio, has announced a wooden fluorescent lighting unit for office and drafting room which effects a saving of 27 lbs. of steel per 4-lamp unit. It's the Admiral. Ninety percent of the total light output is cast down on the working surface, the remainder goes to the ceiling to avoid harsh contrast. The Admiral is standard in 2, 3, 4 and 6-lamp units and may be secured for continuous runs on special order.

Bass-wood louvers of selected grade provide adequate shielding and are hinged

for easy cleaning and relamping. Side frame and exposed end frame are of first grade birch in a handsome walnut finish. All wooden pieces are anchored with metal pins at the corners and cemented with glue to withstand changes in humidity.

The reflector is masonite with a "V" shaped deflector between each pair of lamps. Reflecting surfaces are coated with two coats of infra-red baked white synthetic enamel over one coat of primer.

TURRET LATHE

■ A new universal ram type turret lathe with collet chuck capacity 2" diameter, and having 17½" swing over ways, is announced by the International Machine Tool Corporation, Foster Division, Elkhart, Indiana.

The machine is supplied complete with tools for both bar work and chucking work, and will accommodate 8", 10" and 12" diameter chucks. In addition, it may be equipped with special attachments which conform to specific applications or specific type of lathe work.

THIOKOL SUBSTITUTES FOR RUBBER

■ Latest of the successes announced by Felt Products Mfg. Co., Chicago, Ill., in their search for substitutes for critical materials formerly utilized in gaskets and strips is a new strip material with the spongy effect of rubber strip.

The strip material is produced by the application of Thiokol to a specially processed felt base. The result is a spongy rubber cushioning effect. One of the problems solved in engineering this new material was that of making it weather resistant. These strips have already been produced in lengths well over six feet.

NEW CUTTING MATERIAL

■ Tungsten-Titanium Carbide for cutting tools, has been developed by the Firth-Sterling Steel Co., McKeesport, Pa., as an improved and highly efficient substitute for Tungsten-Tantalum-Titanium sintered carbide. The scarce, imported Tantalum thus saved is made available for other war uses. At the same time the domestically produced Titanium, in addition to improved cutting value, has paved the way for sintered carbide price reductions.

EXPLOSION-PROOF AIR MOTORS

■ Announcement has been made by Gast Mfg. Corporation, Benton Harbor, Michigan, that their rotary air motor is now available for new applications. This unit is declared especially suitable for locations where compressed air is available and where explosion-proof equipment is essential.

Because the basic design employs the same rotary principle as Gast vacuum pumps and compressors, this motor offers the following features: no reciprocating parts or springs, automatic take-up for wear, low maintenance, cannot be

burned out, positive starting in any position, and exceptional compactness for power developed.

These motors deliver from 1/20 to 1 hp. They are fitted with ball bearings and all parts are accurately ground. Self adjusting shaft seals are used in place of packing.

LINCOLN FORCED-INDUCTION PUMPS

■ The Lincoln Engineering Company, pioneer builders of engineered lubricating equipment, are now manufacturing forced-induction pumps. These unique pumps are designed to dispense heavy, viscous materials such as sealing compounds, sound deadeners, insulating materials, putty, heavy lubricants and other substances too heavy and solid to prime in any other type of pump.

A number of these units are already in service in the refrigeration industry.

ROCKER ARM WELDER

■ Designed to achieve a maximum of speed, economy and operating simplicity in capacitor discharge welding of aluminum, a new line of rocker arm welders for stored energy resistance welding has been announced by Progressive Welder Company, Detroit, Mich. These are available with the new highly efficient "Revers-O-Charge" capacitor discharge controls as well as "Frostrode" refrigerating units for below-freezing welding.

BROACH SHARPENING MACHINE

■ New universal broach sharpening machine for sharpening either round or flat broaches is announced by the Colonial Broach Co., Detroit, Mich. It is designed to maintain the same tooth forms and cutting effectiveness originally provided by the broach maker. Will accommodate flat broaches up to 65 inches in length between end teeth, and round broaches up to 72 inches between centers and 6 inch overall diameter. Change-over from round to flat broach sharpening is easily accomplished without special tools.

PLASTIC SPRAY GUNS

■ Spray guns with plastic bodies are announced by the Eclipse Air Brush Co., Newark, N. J. Weigh ¼ lb. less than aluminum body unit replaced. Claimed to have good chemical resistance, and not affected by thinners, solvents, paint removers, etc. Fittings are of metal. Bodies have good impact strength. Available with priority assistance.

MAGNETIC ADAPTER

■ New streamlined magnetic adapter for dial test indicators, surface gages, and gage block applicators is announced by the Windermere Manufacturing Co., Inc., 205 East 42nd St., New York. By removing upright center post and collar, the adapter becomes a general work holding block that may be used to anchor parallel, angle iron, and work pieces in

given position. Holding power is said to be sufficient to provide solid anchor, eliminating clamps and special holders. Tool requires but small space, and magnet ably supports indicator at extreme end of center post in any position.

CARRIER FRAMES FOR PARTS STORAGE

■ Steel carrier frames for fitting with wood inserts, designed for the storage and protection of finely machined and highly finished vital war parts and tools, have been developed by Lyon Metal Products, Inc., Aurora, Ill. The frame is a rectangular container without bottom, side walls formed in channel shape to strengthen and hold wood inserts in position. Heavy steel lugs at each corner permit stacking. Come in two sizes, 30" x 20" x 5¾", and 30" x 30" x 3¾". Carriers can be adapted to practically any requirement by the use of partitions, holed or pegged inserts, which are made by the user.

CONCRETE STRENTHENED

■ A new product which makes concrete several times more resistant to weather and abrasion in dams, fortifications and construction projects of all types was announced by the United States Rubber Company, New York, N. Y.

The product is an absorptive lining for forms in which concrete is poured and is known as Hydron. By removing water and air bubbles from the surface of concrete, it produces a concrete that will last longer and will have a smoother finish without brushing or scraping.

Hydron form linings consist of an absorptive material faced with a fabric. The linings are easily applied to the concrete forms by stapling. It is light, easily handled and flexible for curved surfaces. After the concrete has been cast the forms are removed and the fabric is easily peeled from the concrete.

TWO-PEN FLOW RECORDERS

■ For use where it is desired to have two related flow records on the same chart for ready comparison, Cochrane Corp., Philadelphia, Pa., has developed 2-pen electric flow meter. Unit actually is two complete flow meter receivers mounted in one double depth case. Both receiver mechanisms can be swung out and operate in that position.

Among the ASSOCIATIONS

LARGE CMP MEETING SPONSORED BY NJ AND NY GROUPS

An all day conference on the Controlled Materials Plan held under the auspices of the North Jersey Purchasing Agents Luncheon Club and the Purchasing Agents Association of New York in the Essex House, Newark, was attended by more than 125 members and guests. The principal speaker was William E. Arnstein, Regional PRB and CMP Specialist, New York headquarters. Other speakers were Robert Parker, PRP and CMP Specialist, and Thomas Nevins, Analyst, from the Newark office. Arrangements for the program were made by Walter M. Hoffmann of the American Oil and Supply Company.

CALIFORNIANS HOLD ANNUAL CONFERENCE AT OAKLAND

The Nineteenth Annual Conference of the California State, County and Municipal Purchasing Agents' Association was held in Oakland February 23-25, headquarters being the Oakland Hotel. The schedule for the three-day session was under the guidance of Clyde S. Yerge, President of the Purchasing Agents Association of Northern California, as Chairman of the Conference Committee:

Tuesday, February 23

Appointment of committees, new membership applications, and roll call. Welcoming addresses by President Clyde Yerge of the Northern California Association, and E. W. Beck, President of the Purchasing Agents Association of Los Angeles.

Address: "The Value of Local and National Purchasing Agents' Association Membership," Arthur Baker, Executive Secretary-Treasurer, Purchasing Agents Association of Los Angeles.

Address of Welcome at Luncheon Meeting, Dr. John F. Slavich, Mayor of Oakland, with response by Grant Goodale, vice president, State Bureau of Purchases. Address: "Adapting State, County, or Municipal Governmental Functions to Conditions," Angelo J. Rossi, Mayor of San Francisco.

Address: "Food Rationing Procedure and Future Prospects for Food Rationing," Orval R. Buckman, Assoc. Regional Food Rationing Representative, OPA.

Open Forum, led by Walter Y. Tretheway, San Joaquin County. Mr. Buckman and Amos T. Crowl, Assoc. Regional Mileage Representative, O.P.A., answered questions.

Dinner, South Room, Hotel Oakland, featured by special program.

Wednesday, February 24

Address: "War Time Problems the Governmental Purchasing Agents Must Solve," Joseph W. Nicholson, Purchasing Agent, City of Milwaukee, Wis., and a past president of the N.A.P.A.

Open Forum led by Charles C. Harvey, City of Pasadena, with answers to questions by Jas. A. Whiteside, Regional Representative, Government Division W.P.B.

Address: Governor Earl Warren of California, at joint luncheon; President A. J. Holm, presiding.

Discussion on Priorities and Allocation Problems and Procedure, by Gilbert Kneiss, Priorities District Manager for WPB.

Open Forum, led by Eugene Fenelon, Orange County.

Annual President's Dinner, Hotel Oakland.

Thursday, February 25

Report of Legislative Committee, Fred Misplay, State of California.

Address: "Are Governmental Purchasing Agents the Forgotten Men?", J. W. Hughes, County of Los Angeles.

Reports of committees.

ROUND TABLE EDUCATORS DISCUSS PRICES AT CHICAGO MEETING

The Purchasing Agents Association of Chicago at its February meeting, for the fifth time had the privilege and pleasure of a presentation by the University of Chicago Round Table Discussion on "What Will Happen to Prices". Heading the group of speakers was William H. Spencer, J.D., Dean of the School of Business, Professor of Business Law, and author of various books and articles on labor, and the "Textbook of Law and Business"; and Professor Samuel H. Nerlove, associate professor of Business Economics, formerly a senior financial economist for the U. S. Treasury. He is the author of "A Decade of Corporate Income" and "Outline of Economic Order," and a recent pamphlet "War Expansion and Price Inflation". Also, Dr. Melchior Palyi, visiting professor of Economics of the University of Wisconsin, the author of several books on credits, mortgage banking and control of capital.

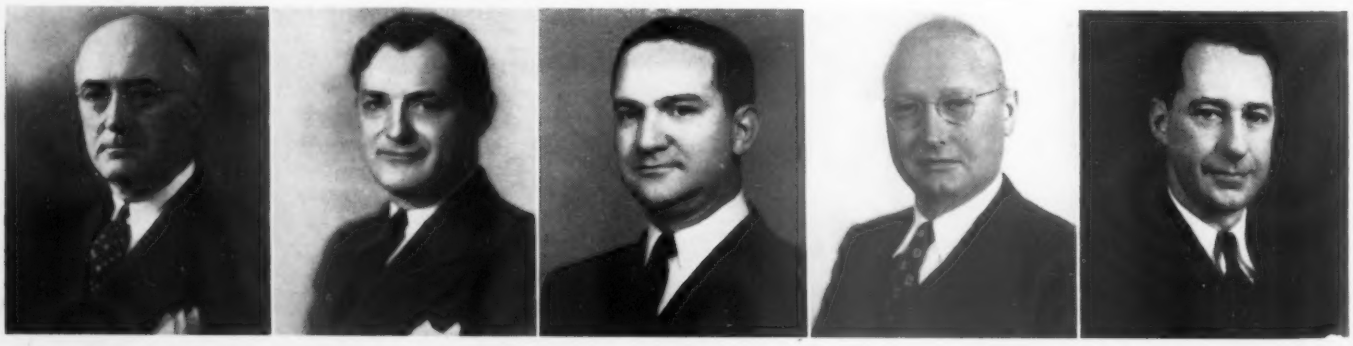
HABERKERN AND RENARD AT CLEVELAND

President Roy C. Haberkern of the N. A. P. A., and Executive Secretary George Renard were the guest speakers at the February 18 meeting of the Purchasing Agents Association of Cleveland.

RATIONING BOARD ACTIVITIES DISCUSSED AT TULSA

C. W. Cotton of the C. W. Cotton Supply Company, and acting chairman of Tulsa County War Price and Rationing Board, and W. L. James, purchasing agent, Stanoline Oil & Gas Co., a member of the board since its inception, detailed the activities of their war work at the February meeting of the Purchasing Agents Association of Tulsa. Another

(Continued on page 124)



New officers, The Purchasing Agents Association of Tulsa. Left to Right: President, J. H. Wolf, British-American Oil Production Co.: First Vice President, R. M. McMahan, Boviard Supply Co.: Second Vice President, W. H. Barclay, Darby Petroleum Corp.: C. J. McLaren, retiring president, National Director: and R. V. Stephens, Secretary-Treasurer.

(Continued from page 122)

subject of unusual interest was presented by Capt. Gerald H. Westby, president of Seismograph Service Corporation, on the work of the Civil Air Patrol which is doing outstanding work on the nation's coast lines.

"PAINT CLUB" HOSTS AT SAN FRANCISCO

The Golden Gate Paint, Varnish and Lacquer Association, popularly termed "The Paint Club," was host to the Purchasing Agents' Association of Northern California, at the nineteenth annual joint meeting of the two groups, held in the Palace Hotel, San Francisco. Earlier in the month, the Purchasing Agents enjoyed a showing of the sound-motion picture "Target for Tonight," showing an actual flight of six men in an RAF bomber over Germany, released by the OWI. The February 4th luncheon meeting was featured by an address by Dr. Robert J. Kerner, Professor of Modern European History, University of California, on "Russia and the Present Conflict." At the February 9th luncheon meeting, under the guidance of Art Melka, developments in the controlled materials plan were discussed and analyzed, the subject again being discussed at the regular February monthly meeting.

PRESIDENT HABERKERN OF NATIONAL SPEAKER AT PROVIDENCE

National President Roy C. Haberkern, Purchasing Agent of the R. J. Reynolds Tobacco Company, Winston-Salem, N. C., and a member of the board of directors of that company, was a welcome visitor and speaker at the February meeting of the Rhode Island Purchasing Agents Association which was held in the Narragansett Hotel at Providence. Another of the feature speakers was Daniel Townend, chemical expert, War Production Board, who talked on "The General Chemical Situation". The Board of Directors announced approval of two new memberships, namely, Robert H. Kugler, American Bosch Corp., and Arthur L. Pierce, American Emery Wheel Works.

DISCUSS POSTWAR MARKETS AT BIRMINGHAM

"After The War Markets" was the subject of a talk by J. R. Lester, Assistant Manager of Residential and Commercial Division of the Sales Department of the Alabama Power Co., at the February meeting of the Purchasing Agents Association of Birmingham, to which members had been invited to bring their sales managers.

MILWAUKEE ASSOCIATION GETS IDEAS ON WHAT'S COMING NEXT

"What Faces us in the Future", was the subject of a highly interesting talk presented to the members of the Milwaukee Association of Purchasing Agents at their February meeting, by J. Seton Gray.

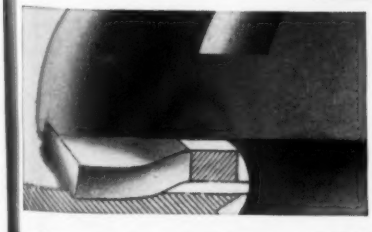
(Continued on page 126)

This Saves Man-Hours!

Pre-assembled SHAKEPROOF Lock Washer and Screw... handles as a single unit...speeds assembly operations!

NO TIME WASTED DOING THIS!

EASY TO HANDLE FASTER DRIVING!



EVERY SCREW LOCKED TIGHT!

SEMS Fastener Units have proven their outstanding production advantages in hundreds of war equipment applications. Because they are pre-assembled, they eliminate the time formerly required for putting the lock washer on the screw. "Green" workers can handle them easily and there is no chance to "forget" the lock washer. SEMS units not only speed up assembly but also assure positive locking for every screw—an important factor in quality control. Write for free testing samples today!

SHAKEPROOF Inc.

"fastening Headquarters"

2501 North Keeler Avenue, Chicago, Illinois

Distributor of Shakeproof Products Manufactured by ILLINOIS TOOL WORKS

Plants at Chicago and Elgin, Illinois

In Canada: Canada Illinois Tools, Ltd., Toronto, Ontario

SEMS FASTENER UNITS

(Continued from page 124)

president and general manager of the Fuller Manufacturing Company of Kalamazoo, Michigan. Special guests for the evening were graduating members of the Marquette Purchasing Class who were presented with certificates by President J. E. Barron.

MAN POWER SITUATION DISCUSSED AT BOSTON

Monday, February 8, was Executives Day for the New England Purchasing Agents Association, the meeting being featured by addresses by the president and district vice president of the National Association, and a field officer of the selective service system. Lt. Col. Roy C. Charron, U.S.A., Regional Field Officer, Selective Service System, discussed "Industrial Procurement Functions in the Eyes of the Selective Systems" at the afternoon meeting to which company and personnel managers were invited. President Roy C. Haberkern of the National Association, gave an interest-holding talk on the importance of war-time procurement at the dinner meeting, reviewing business affairs and the possible post-war situation. Also, S. J. Kennedy, Springfield Gas Light Company, and Vice President, District No. 9 of the National Association, was another speaker rounding out the day's three-star program. Secretary H. J. Graham announced that the association will not hold its annual industrial exhibition this year.

JOURNALIST STEEL ADDRESSES NEW YORK GROUP

Johannes Steel, noted news commentator, journalist and author, addressed the Purchasing Agents Association of New York on the subject "What To Do With Germany After the War", at its February 16 meeting. On February 11, Lawrence C. Leonard, Chief of CMP for the Chemicals Branch of WPB, Washington, was the speaker at a special meeting for members whose companies are engaged in the chemical industry, on Regulation No. 5. covering maintenance, repair and operating supplies.

TRANSPORTATION FORUM AT ROCHESTER

Members of the Purchasing Agents Association of Rochester attending the February 24th meeting of that body got first hand information on what these days of defense transportation hold in store for the Purchasing Agent. Among the speakers were Albert J. Monro, District Manager of the Rochester district of O. D. T.; Frederick W. Burton, Director of the Department of Transportation, Rochester Chamber of Commerce; Samuel B. Gianniny, Managing Director of Associated Industry Trucking, Inc.; and, Carl Borntrager, Division Superintendent of the New York Central Railroad. Wm. T. Roach, a past president of the National Association of Purchas-

(Continued on page 129)

Steel *makes good rat traps*

Funny thing about rat traps, they don't all look like rat traps. Take *coke ovens.* You need *coke* to make iron, *iron* to make steel, *steel* to crush international rats. When the steel industry put into operation currently-built Koppers coke ovens vast enough to produce five million *more* tons of coke annually, that was a major Allied victory. Or take couplings. You can't get enormous steel tonnages if couplings go bad and shut down machinery. That used to happen often, but the steel industry for years has been putting Koppers Fast's Couplings at all vital spots; today, the non-stop records of these couplings are like shots heard round the world. Koppers also serves the Steel industry with coking coal, plants to recover chemicals, D-H-S Bronze and other products.—Koppers Company, Pittsburgh, Pa.

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

Buy United States War Bonds and Stamps

PRODUCTION STRATEGY

• *It is good strategy* to use good cutting tools. The quality of your cutting tools measures the efficiency of your machine tools!

Ship worn-out High Speed Tools back to the steel mills – this high grade steel can do another war job.

MORSE THERE *IS* A DIFFERENCE **TWIST DRILL AND MACHINE COMPANY**
NEW BEDFORD, MASS., U. S. A.

NEW YORK STORE: 130 LAFAYETTE ST. - - - - CHICAGO STORE: 570 WEST RANDOLPH ST.

When writing Morse Twist Drill and Machine Company please mention Purchasing

(Continued from page 126)

ing Agents, and manager of the Eastman Koodak Company's Hawk-Eye plant, spoke on "Post-War Purchasing" at the February 4th meeting of the association.

RAILROAD PURCHASING AGENTS SPEAK AT WESTERN RAILWAY CLUB

Following an address before the Western Railway Club of Chicago at its February 1 meeting, on "Oats for the Iron Horse" by Vice President Albert C. Mann of the Illinois Central Railroad, special talks were made by E. A. Clifford, General Purchasing Agent of the C. & N. W. Ry.; A. N. Crenshaw, Purchasing Agent, Great Northern Railroad; D. C. Curtis, Chief Purchasing Officer, C. M. & St. P. & P.; and R. D. Long, General Purchasing Agent of the Burlington Lines.

PENNSYLVANIANS DISCUSS PAPER AND COAL

Announcement was made at the February 4th meeting of the Purchasing Agents Association of Northwestern Pennsylvania held in the Carver Hotel, Warren, Pa., of the appointment of Emmet Bittner as Vice President for National Association District No. 6 to fill the unexpired term of Eli Jensen, deceased. The announcement was made by Arthur Clinger, National Director, who reported on the activities of the Board of Directors. A discussion of the Controlled Materials Plan was led by E. W. Koebley, of the Warren Axe & Tool Company, and Tom Servatious, Northern Container Corp., Bradford, Pa., gave a talk on the paper situation. Frank Wodrick of the Kendall Refining Company gave a general outline of the coal situation.

HOOSIERS DISCUSS PRIORITIES

Albert O. Evans, priorities chief for the Indianapolis District, War Production Board, addressed the Purchasing Agents Association of Indianapolis, at the Hotel Severin, February 5, local manufacturers being well represented at the meeeting. Another meeting with Carl Andrae, WPB regional supervisor of inventory, and Mr. Evans being the principal speakers, was held on the 12th in the Columbia Club, this meeting being scheduled in the interest of wholesalers, distributors and jobbers of hardware, building and industrial supplies. Howard M. Muller, president of the association was in charge.

RAILROAD CLUB HOLDS "PURCHASES AND STORES NIGHT"

At a meeting of the New York Railroad Club, dedicated as "Purchases and Stores Night", President Charles C. Hubbell, recently retired as Purchasing Agent of the D. L. & W. Ry., turned the meeting over to Frank S. Austin, Purchasing Agent of the New York Central Railroad. Among the other speakers were

(Continued on page 132)

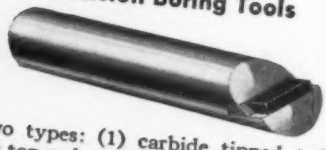
Over 300 CARBOLOY (TRADE MARK) ★ CEMENTED CARBIDE STANDARDS*

For War Production

*Standard Stock TOOLS AND BLANKS

Standard stock items are tools and blanks manufactured in mass production and are therefore lower in price and more readily available than tools or blanks made only upon receipt of order. Large number of items are now in this standard stock classification. Of particular importance to war plants are the standard tools shown below at right. To meet rush needs, many plants keep active stocks of these and quickly grind special shapes as needed.

Precision Boring Tools



Two types: (1) carbide tipped (with flat top or back rake) sizes $\frac{5}{16}$" through $\frac{1}{2}$" dia. (2) solid carbide $\frac{3}{32}$" through $\frac{1}{4}$" dia.

Lathe and Grinder Centers

(Up to 50 times longer life than steel.)

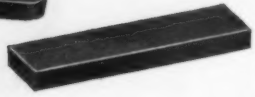
Carbide tips only.

Finished tipped centers (with Morse, B & S, and Jarno Tapers).

Special-Purpose Standard Stock Carboloy Cemented Carbide Blanks

Scraper Blanks for 4 hand scraper sizes

Pointed Nose Blanks



Reamer Blanks 11 Standard Sizes

Pointed nose blanks have 80° included angle. For pulley grooving and general purpose turning.

Masonry Drills

Drills concrete, brick, etc. 75% faster than old methods. Use in portable electric drills or hand braces. Speeds up installation of wiring, piping, machinery, etc. Sizes $\frac{3}{16}$ to $1\frac{1}{2}$.

Diamond-Impregnated Grinding Wheel Dressers

Contains large number of sharp diamond particles permanently embedded in carbide matrix. Eliminates remountings. Saves 25% in annual dresser costs. 3 sizes. For all grinding wheels.

General-Purpose Standard Carboloy Blanks

Style 100 Style 200

For emergency tooling, braze Carboloy blanks to your own shanks. More than 100 standard blanks available. Sizes $\frac{1}{16}$" to $\frac{1}{2}$" thick.

Ammunition Dies

(Catalog D-113-R)

.30 and .50 cal. drawing dies

For drawing steel shell 20 thru 105 mm. Complete line of brass shell dies.

Standard Turning, Boring, Facing Tools for Steel, Cast Iron, Etc.

(You can grind to hundreds of special shapes. Wide range of sizes.)

Style 4
(Style 7, left hand)

Style 13
(Style 14, left hand)

Style 5
(Style 9, left hand)

Style 10
(Style 11, left hand)

Style 12

Style 1

*Standard Design TOOLS AND BLANKS

Standardized design items, in general, are former spec tool styles for which there previously has been a lar demand within a narrow range of minor design variation Standard designs for these have been established to broad meet most previous requirements. You can now order thes items simply by tool number and eliminate considerable tim for drafting, blueprints, quotations, detailed ordering, etc

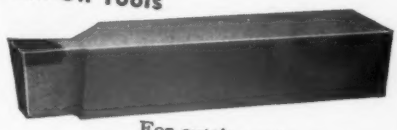
Extruded Shapes for Rod Tubing and Twist Drills

This unusual Carboloy Company development provides economical production of many unique shapes for wear resistant uses. Standards now available in lengths up to 30" in shapes shown. Specials where quantity warrants.

6 Films Available for Your Plant Training Program

Films show detailed step-by-step procedure on manufacture, design, application and maintenance of carbide tools. 35 mm. silent slide films (not motion pictures) available at approximate print cost of $20 per set.

Cut-Off Tools

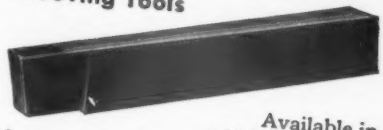


For cutting off to hollow cores such as shell forgings, etc.

Tools for Roller Turners ("Box" Tools)

For W & S and Gisholt lathes. Extra large tips and special shapes provide long period of tool life.

Grooving Tools



Available in widths over .060" through .330" Tolerances up to .0004".

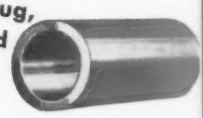
Shear Type Tools

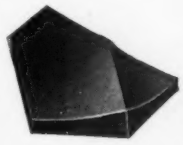
Heavy duty tools in 4 sizes for interrupted cuts on large forgings and castings.

Solid Carbide Guide Rings

For wear resistant uses on machines such as wire stranding machines. Increases life up to 50 times.

Bushings for Plug, Ring Gages and Drill Jigs

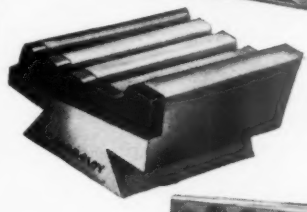




Twist Drill Carbide Blanks

Standardized in 30 sizes from 1/8" to 1 5/8" diameter.

Also Selected Types of Special Tools—such as gun drills, form tools, grooving tools, skiving tools, etc.



Send for Free Catalog

32-page catalog GT-142 contains prices and specifications of all standard stock and standard design Carboloy Cemented Carbide tools. Also lists 76 tool manufacturers supplying special Carboloy-tipped cutters, gages, etc. Write for your copy today.

Meeting Carbide Demands 45 Times Greater Than Pre-War Years

CARBOLOY COMPANY, INC.

Sole makers of the Carboloy brand of cemented carbides

11147 E. 8 MILE ROAD, DETROIT, MICH.

Birmingham, Ala. • Chicago • Cleveland • Los Angeles • Newark • Philadelphia • Pittsburgh • Seattle

Canadian Distributor: Canadian General Electric Co., Ltd., Toronto, Canada

CARBOLOY

TRADEMARK

CEMENTED CARBIDES

TRADEMARK

(Continued from page 129)

J. S. Fair, Jr., Purchasing Agent, the Pennsylvania Railroad, Merle E. Towner, General Purchasing Agent Western Maryland Railway, and J. E. May, fuel agent, B. & O. Railroad.

THOMAS J. RUSSELL NAMED PRESIDENT OF S.&P.A.A.

Thomas J. Russell was named president of the Salesmen's & Purchasing Agents' Association at the monthly meeting of that group held in the Stratfield Hotel, Bridgeport, Conn., February 2nd. Other new officers elected are Charles Coulson, first vice president; Leonard T. Brown, second vice President; George Ibbs, treasurer; and, Forrest C. Benson, Secretary.

Louis M. Crittsinger, chief of the allocations section of the Springfield Ordnance district and one of the authors of the Controlled Materials Plan, was the principal speaker. Other speakers were Capt. D. F. Linsley, chief of conversion engineering section; Capt. John Sandham of the local ordnance board; Charles Hedges of the Springfield Ordnance district, and Harold Bates of the New England WPB, Boston.

SOLUTION OF PEACE PROBLEMS DISCUSSED AT BUFFALO

DeLoss Walker of Chicago, economist, was the principal speaker at the February 10 meeting of the Purchasing Agents Association of Buffalo held in the Lafayette Hotel. Mr. Walker, who spent some time in China and Japan, talked on the Japanese situation, and on factors involved in revitalizing America after the war is won.

ANNUAL LADIES NIGHT AT BALTIMORE

The Purchasing Agents' Association of Baltimore, Inc., held its Twenty-Third Annual Ladies' Night in the Lord Baltimore Hotel. J. J. Jericek headed the committee in charge of the affair, which also included W. J. Young, C. H. Proffen, A. H. Schultz, Wm. R. DeGrafft, J. H. Gaston, and L. T. Whitehead.

NATIONAL OFFICERS VISIT NEW HAVEN

President Roy C. Haberkern of the National Association and Vice President Stephen J. Kennedy, Purchasing Agent of the Springfield Gas Light Co., Springfield, Mass., were the principal speakers at the February 11 meeting of the Purchasing Agents' Association of Connecticut, which was held in the Union League Club, New Haven.

CANTON PURCHASING AGENTS LEARN ABOUT JAPAN

At the February meeting of the Purchasing Agents Association of Canton, the principal speaker was the Rev. E. T. Horn, pastor of Trinity Lutheran Church Canton, who spent 20 years in Japan as missionary and teacher.

NORTH AFRICAN WAR SCENES AT TACOMA

N. D. Tichenor, northwest district Purchasing Agent for the Standard Oil Company of California, presented a film of sound-movies showing "North African War Scenes", at the February 11 meeting of the Purchasing Agents Association of Washington, in the Washington Athletic Club, Seattle. This was followed by a forum on the Controlled Materials Plan, led by Henry Barslaag, priorities department manager, Seattle Tacoma Shipbuilding Company. Another feature was "Pierce County—1943", by Eric Strommer, Purchasing Agent, Hunt & Mottet Company, Tacoma.

JUNIOR BUYERS MEET IN NEW YORK

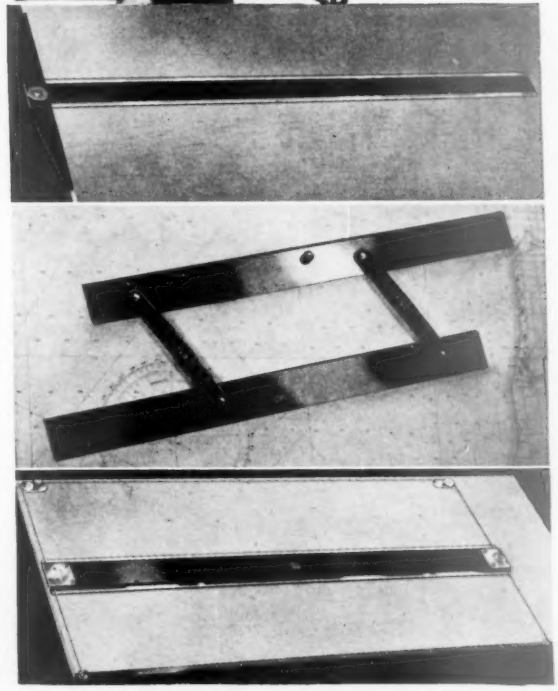
Stuart F. Heinritz, Editor of PURCHASING, was the speaker at the February meeting of the Metropolitan Purchasers' Assistants Club, held at Midston House, New York City, on the 9th. His topic was: "What the War is Doing to Purchasing." Pointing out that the science of industrial purchasing was born in the emergency conditions of the first World War, and that progress has been built on the foundations of that experience, he drew a parallel with the present period in which similar and even more intense

(Continued on page 134)

A FRIENDLY HAND *to the Engineer*

HERE'S some friendly help to the engineer in his own personal work. By using Formica for numerous purposes in the machines they design engineers have often found the going easier, the product better. Now this same modern, laminated plastic material is offered in the form of T squares and other drawing instruments for use in the draughtsman's work—instruments that wear like iron, hold together and endure for years, never change in dimensions or appearance. They are beautiful instruments when you get them and they remain that way.

They are manufactured from Formica materials by the Engineering Sales Company, Sheboygan, Wisc.



ARMY E NAVY FORMICA

Formica has received the Army-Navy "E" Award for Excellence in Production.

THE FORMICA INSULATION CO. • 4665 SPRING GROVE AVE. • CINCINNATI, O.

When writing The Formica Insulation Co. please mention Purchasing

(Continued from page 132)

formative influences are at work. Among the significant developments of the present era, which are helping to shape the course and science of purchasing for some years to come are the necessity of working under a controlled economy and a new philosophy of business responsibility, increased importance of utilization and control of materials rather than actual procurement, the mechanics of scheduling and materials accounting as the basis of purchasing department procedure, and a tremendous increase in purchasing personnel with some 20,000 new men having been drawn into this field during the past two years. The young man in purchasing today, he said, has an opportunity such as comes only once in a generation, and urged the members of the Club to prepare themselves for leadership in purchasing during the period which lies just ahead.

EDUCATIONAL BUYERS ASSOCIATION WILL MEET IN CLEVELAND

The Educational Buyers Association has announced that its annual convention will be held at Cleveland, Ohio, May 5, 6, 7 and 8, with headquarters at the Cleveland Hotel. Claude Black, Purchasing Agent of Indiana University and E. B. A. Vice President in Charge of Programs, is heading the committee on arrangements. E. B. A. President C. L. Hough, Jr., of The Principia, St. Louis, is at present on leave, serving with the School and College Section of the War Production Board in Washington.

NATIONAL OFFICERS SPEAK AT SPRINGFIELD MEETING

Roy C. Haberkern, president of the N.A.P.A., and S. J. Kennedy, vice president, were the principal speakers at the regular monthly meeting of the Purchasing Agents of Western Massachusetts, held in the Hotel Sheraton, Springfield, Mass., February 10.

EXECUTIVE NIGHT AT PITTSBURGH

George A. Renard, secretary, N.A.P.A., was the principal speaker at the Annual Executive Night meeting of the Purchasing Agents Association of Pittsburgh, held in the Hotel William Penn, February 16. "From One P.A. to Another" was his subject.

McMINN COUNTY PROVIDES FOR PURCHASING OFFICER

A bill providing for the creation of the office of Purchasing Agent and Budget Director of McMinn County, Tennessee, at a salary of $2,400 a year, has been signed by Governor Prentice Cooper. The act validates the prior action of the McMinn quarterly county court, which established this arrangement for handling the county's business affairs and appointed Representative George Woods to the position. The term of office of the new official is to be four years, and he will be elected at the April term of the court.

VOLUNTARY ASSISTANCE TO PROCUREMENT AGENCIES

As a temporary solution to the still increasing shortage of Tool Engineers in War Production Industries, the membership of the American Society of Tool Engineers has embarked on a national program of voluntary assistance to procurement agencies, contractors and subcontractors, etc., to provide a ready solution to production problems.

Essentially the program consists of the setting up of either temporary or permanent panels in each chapter town which meet regularly and to which contractors, sub-contractors, procurement agencies, etc., can bring specific problems for an answer.

The project has been in operation experimentally for two years in Boston, where the chapter is cooperating closely with the War Production Board. Panels have also been set up in a number of other chapter areas, including St. Louis, Chicago, and Northern New Jersey.

The success of these individual operations in assisting industry and governmental agencies has led the A.S.T.E. to sponsor the development on a national basis covering practically every industrial area of any importance.

In addition to specific production or tooling problems, the panels have shown an ability to assist industry in a good

(Continued on page 136)

When writing Levinson Steel Sales Co. please mention Purchasing

(Continued from page 134)

many other ways. Thus, in one area, a panel was able to locate some very badly needed machine tool capacity in connection with an important war contract. In another locality where shortage for a certain type of tool existed, the panel found that a stock of the particular type of tool was available in one of the plants in that area. The tools were not being used and the company was glad to make them available for the war production job for which they were needed.

Although sent out only a short time ago, approximately 2000 questionnaires from "volunteers" have already been received by A.S.T.E. headquarters.

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WPB A SERVICE ORGANIZATION DECLARES NELSON

Chairman Donald M. Nelson has sent the first of a series of policy letters to employees of the War Production Board. The text of policy letter No. 1, citing WPB as a service organization follows:

"During 1943, the War Production Board faces increased problems growing out of our principal job—gearing the national economy to an all-out war effort. In this, the first of a series of letters to keep all of you more familiar with WPB policies, I want to discuss one of these problems: the role WPB must fill as a service organization.

"We have the task of putting through the largest war production schedule in history—a program which staggers the imagination. We must also provide essentials for the civilian population. In a letter to the Murray Committee I said:

" 'A war economy is an economic and political structure which will insure the minimum of goods and services necessary to keep the population alive, healthy, and functioning effectively and will insure that everything else, men, machines and materials, that can be directed against the enemy is so directed.'

"But adjusting to such an economy is difficult, and industry needs help in getting its job done with a minimum number of questionnaires, forms and red tape.

"So we have a definite responsibility in dealing with the public and industry. This is not the responsibility of any one group in our organization. Everyone in WPB—whatever his job—is, in the fullest sense of the word, a public servant.

"Answering mail promptly, returning telephone calls at once, giving vigorous help in filling out forms and questionnaires, seeing that office visitors get help quickly—these jobs may seem tedious, but to the individual involved they are often of the greatest importance.

"While such responsibilities may often become onerous, it is precisely at such times that we must exert extra effort. Anyone can do an easy job; the test of a good WPB employee is whether he can perform with courtesy and precision when the going gets tough.

"Let me suggest this principle: In the face of any call for help, let's do the job we would want done if we ourselves were on the other end of the request."

ALLOTMENTS OF CONTROLLED MATERIALS

The WPB Requirements Committee has allotted to the 14 Claimant Agencies the amounts of steel, copper and aluminum to be delivered to manufacturers for America's war production during the second quarter of 1943 under the Controlled Materials Plan. The allotments, the first under CMP, were made exactly in accordance with the time table set forth when the Plan was announced last November, said WPB Chairman Nelson, as CMP will become operative on April 1, and will be put into full effect on July 1, 1943.

Allotments of tonnages of the three basic and critical materials—steel, copper and aluminum—provide for balanced production programs with the total requirements kept within supplies available during the second quarter. Full provision has been made in the allotments for the "must" programs—synthetic rubber, high-octane gasoline, aviation, army material, merchant and naval shipping and escort vessels—as they currently stand. Less essential programs, the announcement said, have been cut to the bone.

According to Ferdinand Eberstadt, former Vice Chairman of WPB, the materials "pie" that was cut into 14 pieces comprised some 17,000,000 tons of steel products, of which some 15,000,000 tons was carbon steel and some 2,000,000 tons were alloy steel; some 600,000 tons of copper and about 600,000,000 pounds of aluminum. The over-all requests, however, exceeded supply by approximately 17 percent for carbon steel, 15 percent for alloy steel, 16 percent for copper and 14 percent for aluminum.

LIGHT POWER DRIVEN TOOLS UNDER STRICT CONTROL

Production and distribution of certain light power-driven tools were brought under strict control. The order—which does not apply to deliveries made on or before April 4, 1943, to fill existing orders, nor to portable tools as defined in the order—restricts production of the light power-driven tools listed in Schedule A to a 60-day anticipated inventory to meet orders rated A-1-a or higher (however, production must not exceed 16 2/3 percent of the total 1941 sales by dollar value for any 60-day period) and restricts all sales, transfers or deliveries (except those from one distributor to another distributor) to orders rated A-1-a or higher. Distributors' inventories may not be increased beyond five in number for any specified size and type of tool listed in Schedule A.

SAYS PRICE ADVANCE ON CRUDE OIL NOT JUSTIFIED

Pointing out that such an increase would add heavily to the consumer's fuel bill and "dangerously" threaten price control, OPA said a general advance in crude oil prices for the nation's oil production is not justified at this time. It has been estimated, OPA said, that each cent per barrel added to the price of crude

(Continued on page 138)

(Continued from page 137)

oil in the U. S. would mean adding $14,000,000 per year to our fuel bill. OPA's attitude toward a general increase, however, does not mean that the "door has been closed" against consideration of local, regional or area price problems arising from abnormalities, undue hardship arising from oil shortages, and uneconomic price structures.

✓ ✓ ✓

IMPORTANT CHANGES EFFECTING WAREHOUSE DELIVERIES

The importance of warehouses under the Controlled Materials Plan is recognized. C.M.P. Regulation No. 4 outlines the procedure to be followed by warehouses and distributors in marketing controlled materials. Particular emphasis is also put on a plan to conserve the materials in warehouses so that a constant reservoir of material needed for emergencies may be maintained.

Delivery of Brass Mill or Wire Mill Products From Warehouse Stocks:

(No. 1) A warehouse may fill an authorized controlled material order, or an order bearing a preference rating of AA-5 or higher for Brass mill or Wire mill products from his stocks provided that, (I) such order does not require delivery of more than 500 lbs. (Copper or Alloy weight) of any item to one destination at any one time; and

(II) Such order is accompanied by a certificate signed manually or as provided in priority regulation No. 7 in substantially the following form:

"The undersigned hereby certifies to the Warehouse with whom this order is placed and to the War Production Board, subject to the criminal penalties provided in Section 35 (A) of the United States Criminal Code, that the amount of each item of Brass mill or Wire mill products covered by this order, together with all other amounts of such item received by, or on order for delivery to the undersigned, at any one destination from warehouse stock, during the same month, does not exceed 2,000 lbs., and that such items wil not be used by the undersigned for any purpose in violation of any order of the War Production Board."

A warehouse shall be entitled to rely on such certificate unless he knows or has reason to believe it to be false. All orders bearing an allotment number must be accompanied by three copies of form C.M.P-6.

(No. 2) No person who obtains any item of Brass mill or Wire mill products pursuant to this paragraph shall accept deliveries of the same item at any one destination aggregating more than 2,000 lbs. during one calendar month from warehouse stocks.

(No. 3) No warehouse shall deliver any Brass mill or Wire mill products from stock after February 15, 1943, except as provided in said paragraph (1) as above, nor shall any warehouse make any delivery if he has knowledge or reason to know that acceptance thereof would constitute a violation of subparagraph (2) of this paragraph.

Attention is especially directed to the above excerpts from the order and it is suggested that Purchasing Agents get the complete Regulation No. 4 and familiarize themselves with it.

SIMPLIFIED PRACTICE RECOMMENDATION FOR WIRE ROPE APPROVED

A Simplified Practice Recommendation for Wire Rope has been approved for promulgation, according to an announcement by the Division of Simplified Practice National Bureau of Standards. It became effective February 15, 1943, and is identified as "R198-43."

The program, which lists sizes, constructions, grades and breaking strengths of the vast majority of tonnage of wire rope, was developed by engineers of the wire rope industry to serve as a wartime conservation measure and as a guide for post-war practice.

It is concerned primarily with items that are produced for stock purposes, and does not attempt to deal individually with the numerous and particular end uses to which wire ropes are put. These special purpose ropes will be furnished by the manufacturers, only when their necessity has been demonstrated. The producers of wire rope will view this necessity in the light of the war production program.

This simplification program, the result of long study by the industry, was passed through the regular procedure of the National Bureau of Standards at the request of the War Production Board. General adherence to the recommendation will result in a net reduction in variety from 973 items to 643, or 33.9 percent. The major production and use of wire rope and, therefore, the predominant tonnage, is covered by four different rope-constructions, where the reduction in variety will be from 352 items to 182, or 48 percent.

LARGE NUMBER OF SUB-CONTRACTS GO TO SMALL COMPANIES

The extent to which small and often idle companies may be made to fit into a large industrial pattern for the production of critical items is indicated in the achievements, through sub-contracting, of two industries, the War Production Board has announced.

In carrying out a contract for the production of approximately 10,000 aircraft starters per month, the American Type Founders, of Elizabeth, New Jersey, subcontracted to a total of 46 companies, most of which were small. Because of the large quantities involved and the nature of the machine tools required to produce in that volume, it was necessary

to sub-contract certain parts to large companies. However, contracts for most of the parts went to small companies.

The 46 companies do not include those providing materials, castings or forgings, all of which were placed with small companies, nor do they include any tooling, much of which is done by the sub-contractors themselves. However, where the American Type Founders is designing and manufacturing the tools for the use of a sub-contractor, the orders for the tools are placed with small companies. Taking these plants into consideration, the number of small companies benefiting from this particular operation would approximate 100.

An aggressive policy of sub-contracting, made possible through the cooperation of the Facilities Division of WPB, was credited with helping raise the production of aircraft stop nuts in the plant of the Elastic Stop Nut Company, of Union, New Jersey, from a monthly capacity of about 5 million nuts in 1939 to approximately 120 million nuts per month in 1942.

The present number of sub-contractors working on parts for the Elastic Stop Nut Company now totals 92 companies. This policy of spreading the work among many smaller companies is estimated to account for about 20 to 25 million nuts per month of the company's total capacity.

Production was also increased through operation of the equipment more hours a week, through increased efficiency of existing machinery, and through expansion of present facilities. The Facilities Division of WPB aided the company by locating sub-contracting plants which had been cut back from the Ordnance program, and also provided other sub-contractors throughout the country as they became available.

WILL REQUISITION IDLE MACHINE TOOLS IF NECESSARY

Transfers of idle machine tools to plants urgently needing them are authorized under a policy established by the War Production Board in consultation with the War and Navy Departments and the Defense Plant Corporation. This step was recommended by the Production Executive Committee, under the chairmanship of C. E. Wilson, Production Vice Chairman.

The policy is expressed in a directive signed by under Secretary of the Navy James V. Forrestal; Under Secretary of War Robert P. Patterson; Hans A. Klagsbrunn, Vice-President of the Defense Plant Corporation, and Donald M. Nelson, Chairman of the War Production Board.

The War Production Board, through its Tools Division, will direct the procurement agencies to transfer available tools when new tools cannot be delivered quickly enough to meet requirements. The directive points out that most machine tools purchased for war production have been financed by the Government. It is primarily toward the use of these that the order is directed.

The swift transfer of machine tools to

those who most need them, the directive indicated, will make it unnecessary for contractors to retain reserves against future needs. The policies established, it is believed, will result in "sufficient fluidity and flexibility in the distribution of machine tools to make such reserves wholly unnecessary."

The directive stated that the "guiding principle shall be that upon the issuance of such a direction the transfer of the machine tool in question shall be made promptly." Consequently, the directive continued, "every effort must be exerted by the Governmental agency concerned to obtain the consent of the holder of the machine tool to its immediate transfer."

Negotiations to modify contracts under which the tools are used, or contracts covering production involving use of the tools, are to be conducted after the transfer as far as possible.

If a voluntary transfer cannot be accomplished promptly, steps will be taken to requisition the machine tools in question under the Act of October 16, 1941 (Public Law 274—77th Congress), as amended (Public Law 507—77th Congress), the directive states.

Government procurement agencies concerned with machine tools are to collect lists of machine tools which are "available for transfer to fill other more urgent needs." The information will be given to the WPB Tools Division. Transfers then will be directed, after consultation with other agencies, by the Division.

Orders for outstanding machine tools are to be reviewed "so that those not urgently needed may be cancelled." On December 31, officials pointed out, the average time needed to complete outstanding orders was six and one-half months.

WAR SALVAGE DIVISION

The formation of a Salvage Division, headed by Paul C. Cabot as Director, is announced by Chairman Donald M. Nelson of the War Production Board. Creation of the division follows the resignation of Lessing J. Rosenwald as Director of the Conservation Division of which salvage formerly was a branch. Mr. Cabot was Deputy Director of the Conservation Division, in charge of all salvage operations. The new division will be in the Resources Agencies group under the Director General for Operations.

"Although current inventories of iron and steel scrap are much improved over a year ago and other salvage conditions are in better shape, it is extremely important to realize that scrap needs in the future will be greater than ever", stated Mr. Cabot. "Many situations which were well answered a year ago may again become acute. Copper needs, for example, have grown enormously over the past twelve months and may require us to go after copper, brass and bronze items, non-essential, but in use today, in the near future to augment the scrap supply that has been actively sought throughout the year. Our need for heavy iron and steel scrap such as we get from farms, industry and special projects will be a continuing operation we can never slacken for a single moment."

Aim to Break Production Bottlenecks
"Task Forces" to Check Production

Plans for the organization of special industry committees, or "task forces," to participate in the campaign for breaking bottlenecks in production of critical common components, have been announced by WPB Chairman Donald M. Nelson.

This move represents an important step in the development of overall production scheduling, involving the cutting down of backlogs by redistribution of orders, increasing labor supply in short plants, and, in general, adapting the particular industry for more intensive production.

The plan is a simple, straightforward, emergency method of breaking industrial bottlenecks by the most intelligent utilization of all industrial facilities, small as well as large. All final decisions relating to matters such as redistribution of orders will be made within WPB, after careful review. It is planned, moreover, that smaller facilities will be brought into the picture through the Smaller War Plants Corporation.

Critical common components which are causing trouble include parts and accessories of planes, ships, tanks, guns or other campaign materiel for which manufacturing facilities are limited, but which are needed in greater quantity.

Among such items upon which attention is being focused are gears, valves, Diesel and [illegible]line engines, crankshafts, compressors, pumps, heat exchangers, welding rods and electrodes, electric motors, starters and generators, boilers, vacuum tubes and control instruments.

Plans to break these bottlenecks originated in the office of Charles E. Wilson, WPB Production Vice-Chairman, and are being developed and carried out by Ralph J. Cordiner, Director General for War Production Scheduling, who reports to Mr. Wilson.

The drive began when the Production Vice-Chairman directed letters to the heads of the fourteen claimant agencies, such as the Secretaries of War and Navy, Lend-Lease Administrator, Petroleum Administrator, and Rubber Director.

This letter pointed out that the claimant agencies, their prime contractors and subcontractors, in many cases, had not placed necessary orders for 1943 requirements with the manufacturers of critical components. It was clear that until such orders had been placed, a satisfactory production scheduling job could not be done.

The plan applies to all production programs. Prime contractors are being urged to act promptly, so that subcontractors will not be left out on a limb.

Mr. Cordiner said the Claimant agencies, including the Army and Navy, were cooperating in getting out contracts, so that contractors, subcontractors, and subcontractors all down the line would be able to schedule work for the year promptly.

Production scheduling of critical common components will be done within the industry divisions of the War Production Board, under Mr. Cordiner's supervision. Forms are available on which preliminary information on volume of orders and on manufacturing schedules can be made out. When these are submitted, the orders of each contractor will be analyzed from the standpoint of material requirements and plant capacity. They will be approved by the industry division as submitted, or changed by the Director General for War Production Scheduling.

Operating within each industry division concerned with the production of common critical components will be an advisory scheduling committee, or "task force," organized according to the customary War Production Board procedure for industry advisory committees.

The Division Director, after obtaining recommendations of the Scheduling Subcommittee, will select an industry expert as a War Production Board official; he will serve as the Director's principal aide in working out with the industry and with the Scheduling Subcommittee detailed recommendations for action by the War Production Board. The recommendations and actions taken pursuant to them will be regularly reported to the Industry Advisory Committee.

The committee will meet at regular intervals to make recommendations to the division director concerned with its operations, confer with the scheduling unit of the industry division, and keep the Director General for War Production

Scheduling posted as to its recommendations.

It will be the general function of the advisory scheduling committee to see that the resources of the industry are used to fullest advantage. If one firm has too large a backlog of orders, while another has not enough to schedule work continuously for 1943, the committee will recommend transfer of work from one firm to the other. If a firm has excess capacity capable of turning out critical components, but insufficient labor supply, steps will be taken to see that it is provided with workers.

When re-scheduling or re-distribution of orders appears important to expedite production, the Director General for Operations will inaugurate the necessary steps.

Organization of the advisory scheduling committees is being undertaken by industry divisions, and their composition will be announced shortly.

CMP ACCOUNTING APPROVED

The WPB's simplified manual suggesting suitable accounting procedure under the controlled materials plan to "prime consumers" has been approved by a special committee of the American Institute of Accountants.

WAR DEPARTMENT NAMES ADVISERS ON PROCUREMENT

The War Department has announced the appointment of eleven civilians, to act as an advisory committee on matters relating to procurement. The group will "review current purchasing policies, recommend any changes they believe desirable and necessary and bring to the War Department a direct contact with all sections of the nation."

The new committeemen are C. U. Bay, senior member, A. M. Kidder & Company, New York City, and W. B. Foster, vice-president, Pressed & Welded Steel Products Company, Brooklyn.

John U. Barr, proprietor, Federal Fibre Mills, New Orleans.

Dr. Melvin T. Copeland, director of research, Graduate School of Business Administration, Harvard University.

Huntington B. Crouse, president, Crouse-Hinds Corporation, Syracuse.

Albert Fuller, president, Fuller Brush Company, Hartford, Conn.

Also E. T. Gushee, vice-president, Detroit Edison Company, Detroit; Paul Hoffman, president, Studebaker Corporation, South Bend, Ind.; Ernst Mahler, executive vice-president, Kimberly-Clark Corporation, Neenah, Wis.; George S. Olive, president, American Institute of Accountants, Indianapolis, and David Zellerbach, president, Crown Zellerbach Corporation, San Francisco.

TEXTILE PRINTING ROLLERS FROZEN

Order M-280 issued by the Director General for Operations, prohibits the use after February 15, of copper textile print rollers which were idle in the hands of producers from September 1, 1941 to September 1, 1942. Such rollers must be sold either to a brass mill or to the Metals Reserve Corporation. The order also freezes all copper textile printing rollers held by dealers and permits their sale only to brass mills or to the Metals Reserve Corporation.

TUNG OIL NOW PRODUCED IN THE UNITED STATES

Tung oil, which the United States formerly obtained from the Orient, is now produced in the United States for the first time in substantial, commercial quantities. War necessities appear to be providing a foothold for a crop which may be as important to some areas in the South as soy beans, also a product of the Orient, are to the Midwest.

Tung orchards, planted during the depression under unpromising conditions, now are supplying nuts to a dozen oil mills scattered along the Gulf Coast from Florida to East Texas. As tung oil is worth five times its price of three years ago, the domestic industry may be able to establish itself on a firm basis.

CIVILIAN DYESTUFFS FURTHER CUT

In an action whose effects will be felt in the textile, leather, paper, printing ink, lacquer, plastics, rubber and other industries, the WPB has ordered the sale and purchase of all organic dyestuffs and organic pigments for civilian use cut an average of 40% below 1941 figures, the order being retroactive to January 1.

PERSONALITIES *in the* NEWS

Tucker McCravy has been named Purchasing Agent for Pacific Mills Southern units, at Lyman and Columbia, S. C. Mr. McCravy will office at Lyman.

Martin Kasischke succeeds William Moore as Purchasing Agent, Cooper, Wells & Company, St. Joseph, Michigan. Mr. Moore is retiring after 43 years' service with the company.

Roy C. Haberkern, Purchasing Agent of the R. J. Reynolds Tobacco Company and President of the National Association of Purchasing Agents, addressed a recent meeting of the Civitan Club at Winston-Salem, N. C., reporting progress and methods of war production from his observations on a country-wide trip during which he inspected operations at scores of representative industrial plants.

Hugo H. Krause. Purchasing Agent, Pump Engineering Service Corp., Pesco Division of Borg Warner, Cleveland, was the subject of an interesting full page personality sketch in the February *Pesco News*—company house organ. Hugo H., to whom the sketch applies the sobriquet "Mike" is a former president of the Purchasing Agents Association of Cleveland.

Harrison M. Rowlette. Purchasing Agent, Whiting Corporation, Harvey, Ill., has been promoted to the position of Vice President and General Manager, Whiting Corporation of Canada, Ltd., with offices in Toronto, Ontario. Here he will be in charge of all activities of

the Whiting Corporation in Canada, supervising subcontracting, sales and purchasing. He was appointed to the position of Purchasing Agent in 1916, previous to that being employed as purchasing clerk. Mr. Rowlette has long been an active member of the Purchasing Agents Association of Chicago, having served on the Board of Governors for three terms, and filled various chairmanship and committee appointments. He was president of the association for the 1941-1942 term, and previous to that was vice president. He also was National Director up to the time of his promotion, his unexpired term being filled by H. L. Brueggemann, Director of Purchases of the Acme Steel Company, Chicago. Mr. Brueggemann likewise is a former vice president and past president of the Chicago association, and is now Chairman of the Educational Committee.

Brigadier General Charles D. Young, (U.S.A. inactive), formerly vice president of the Pennsylvania Railroad in charge of Purchases, Stores and Insurance, and previously assistant director of the Office of Defense Transportation, has been appointed Deputy Director of that agency. Previously he was Director of the Section of Materials and Equipment, and Director of Procurement and Distribution, Services of Supply, War Department.

Gentry Dugat has been appointed Purchasing Agent for Dallas County, Texas. He succeeds B. A. Phillips, who has

(Continued on page 146)

(Continued from page 144)

joined the regional office of OPA in the food rationing department. Mr. Phillips was the first president of the Dallas Purchasing Agents Association, holding that office in 1920, when he was associated with the Texas Power & Light Co.

F. T. Fendley has been named Acting Purchasing Agent for the Humble Oil & Refining Company and C. S. Roger has been named Acting Purchasing Agent for the Humble Pipe Line Company, both of

Frank A. Watts, Purchasing Agent, Humble Oil & Refining Co., Houston, Tex., on leave as Director of Materials Division, Petroleum Administration for War, Washington.

Houston, Texas. The interim appointments fill the positions of Frank A. Watts, who is on leave to serve as Director of the Materials Division, Petroleum Administration for War, at Washington, and Harry Lingle, who is directing the purchases for the transcontinental petroleum pipe line.

Dr. Theodore Sedlmayr, has been elected vice president in charge of manufacture, Purchasing and traffic, and a director, to succeed the late John W. Luce, Standard Brands, Inc., New York. Dr. Sedl-

mayr formerly was vice president in charge of research. A native of Hungary, he was assistant professor of fermentation chemistry at the University of Munich before coming to the United States in 1905. He was vice president of the manufacturing division of the Fleischmann Malting Company when it was absorbed by Standard Brands.

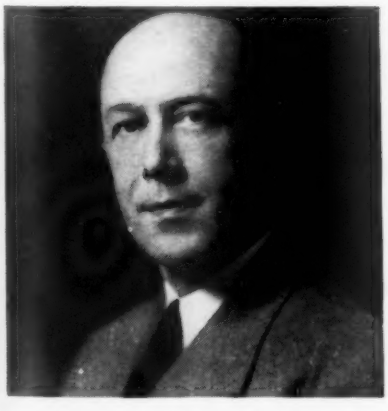
W. M. Hicks, formerly Assistant Buyer, Radio, Television and Electronic Department, General Electric Co., Bridgeport, Conn., is now established as a manufacturers representative, with offices at 60 East 42nd Street, New York.

William MacMurtrie has been named Assistant General Purchasing Agent, Philco Corporation, Philadelphia, Pa. He became connected with Philco Purchasing

Department in 1935, and previous to his new position was in charge of the Chicago office of Purchasing Department, later was Divisional Purchasing Agent for the Automobile Radio Division in Detroit, and of late has been Purchasing Coordinator for Sub-Contracts in the Philadelphia office.

H. J. Baugh, Jr., has become Supervisor and G. T. Ritsos has been made Assistant Supervisor, Procurement Bureau, Carnegie-Illinois Steel Corp., Chicago.

Professor Robert B. Jenkins has been appointed Supervisor of Purchasing, New York University, New York, N. Y. Pro-



fessor Jenkins, who joined the marketing department in the School of Commerce, Accounts, and Finance in 1929, is a member of the American Marketing Association and former executive secretary of the Educational Buyers Association.

John Kemendo, formerly Purchasing Agent of Continental Motors Corp., at Garland, Texas, and president of the Dallas Association, has joined the purchasing department of North American Aviation, B plant. L. Sheldon now directs purchasing at Continental, in the position of Director of Production, Planning and Purchase. Marson French is Purchasing Agent and C. E. Moon is Assistant Purchasing Agent.

Roland Mushat of Montgomery, Ala., has been made Assistant State Purchasing Agent according to announcement by Hayse Tucker, director of finance.

Harold DeWyk has been appointed City Purchasing Agent for Dearborn, Mich.

Burt Pritchett has been appointed Purchasing Agent of the General Engineering Corp., Fort Worth, succeeding Clarence Holden, who is in service with the Army Air Corps.

S. M. McAshan, Jr., head of the United States Purchasing Commission, Rio de Janeiro, Brazil, is reported to have resigned.

E. W. Walther has been appointed acting Assistant Purchasing Agent for the Baltimore & Ohio Railroad, with headquarters in Baltimore, vice H. P. McQuilkin, who has been granted leave of absence for service with the War De-

partment. Previous to this appointment, Mr. Walther held the office of general storekeeper.

Fred E. Tennant has been appointed Purchasing Agent for the Adolphus Hotel, Dallas, succeeding Andy de Marcillac.

V. H. McKimmey, formerly with the Lucey Products Corp., Tulsa, and later with the National Supply Co., Fort Worth, has been appointed Purchasing Agent for the Texasteel Manufacturing Company of the latter city.

Wendell Simpson of Geneva, New York, has been named Purchasing Director of the recently formed Associated Transport, Inc., of New York. He has been associated with his father in the operation of the Simpson Transportation Company.

J. T. Ruth has been appointed Acting Purchasing Agent for the M. St. P. & S. Ste. M. Railway (Soo Line). J. B. Noyes, Purchasing Agent and general storekeeper has retired from active service.

Clarence Lesmer, Purchasing Agent, the Telling Belle Vernon Co., Cleveland, was recently appointed to the board of directors of that company.

Juan Sanchez, treasurer of North Brunswick township, New Jersey, was designated as Purchasing Agent for the township at a recent meeting of the township committee.

R. C. Wietersen, new Director of Purchases, The Buda Company, Harvey, Illinois.

R. L. Ormsbee, State Purchasing Agent, Santa Fe, N. M., spoke on the purchasing of office supplies, at the annual convention of the New Mexico Press Association in Santa Fe.

L. C. Pentis, Assistant Purchasing Agent, Chicago Flexible Shaft Company, Chicago, Ill., is reported to have severed his connection with that company after an association of 13 years.

George F. Waite, Syracuse, New York, has been appointed Commissioner of Contract and Purchase, for that city, vice August Smingler, deceased. Mr. Waite formerly was Deputy Commissioner of Contract and Purchase, and is succeeded by Frank H. Haag, assistant buyer, who is succeeded by Edward M. Vogel.

Fred R. Tripp has been appointed Purchasing Agent of the Mount Hope Finishing Company, North Dighton, Mass., succeeding the late Walter S. Williams.

F. P. Boler, recently appointed Manager of Purchasing, International Harvester Company of Australia, Pty. Ltd., Melbourne.

(Continued on page 150)

(Continued from page 148)

Martin Potter has been appointed Purchasing Agent for the Pennsylvania Salt Company of Washington, Tacoma, succeeding V. K. O'Connor, who has been transferred to the Company's main office in Philadelphia, in the Labor Relations Department.

Woodrow Anderson has been named Purchasing Agent and Traffic Manager for W. P. Fuller & Co., Seattle, succeeding Lloyd C. Elmer, who is now with the Commercial Automotive Service of that city.

SUNDAY BROADCAST ON CIVILIAN RATIONING

Last minute developments each week on the subject of rationing and how it applies to the individual homes of the Nation are being covered Sundy afternoons at three o'clock over a coast-to-coast network of the NBC. The series is being presented by the Council On Candy as A Food in the War Effort, with Ernest K. Lindley, chief of the Washington bureau of Newsweek as principal commentator. Guest speakers include various well known Washington personalities.

PICTORIAL BOOK PORTRAYS ELECTRONICS SCIENCE

"Electronics—A New Science for a New World" is the name of a colorful, pictorial booklet issued by General Electric presenting the general story of electronics—its past, its present, and its great possibilities for the future. Colorful accounts by word and illustration tell how the electron is working today in war combat to perform many marvelous functions; in research to reveal more of nature's mysteries; in industry to step up production, increase human efficiency, and reduce material waste; in radio and television to extend the range and quality of sound and sight over the air waves; in agriculture to improve quantity and quality; and in medicine to reveal more and more of the structure and behavior of the human body.

A copy of the new booklet may be obtained by writing the General Electric Company, Schenectady, N. Y., and asking for booklet GED-1024.

SALVAGE LARGE TIN VOLUME FROM OLD TUBES

The Tin Salvage Institute, Hillside, N.J., received more than 2,300,000 pounds, gross shipping weight, of collapsible tin tubes between April 1, 1942, and January 1, 1943, and more than 680,000 pounds of tin have been recovered and made available for war production, with the remainder in the process of reclamation, according to W. M. Rose, president of the Institute, which is a government agency.

Besides the tin a sizeable quantity of lead and aluminum is being added to the nation's stock pile as a result of the War Production Board's order requiring pur-

(Continued on page 152)

(Continued from page 150)

chasers of toothpaste and shaving cream to return an empty tube with the purchase of fresh goods.

The tubes are coming at the rate of hundreds of thousands monthly, with 400,000 pounds being received in December.

PURCHASING MEN AVAILABLE

Men who are experienced and qualified in purchasing work are hard to find in these days. PURCHASING Magazine has on file the records of a few men who are now available, and will be pleased to serve as the medium of bringing together the man and the job where such experience and training can most effectively be put to work.

If you have an opening where such men can be used, please let us know about it. If you are seeking a position in purchasing work, please send us a resume of your qualifications. All information should be as specific as possible regarding the type of work, location, salary range, and personal requirements, to enable us to act intelligently in this service.

CANCELLED PROJECTS TOTAL BILLION AND A QUARTER

Construction projects having a total cost of $3,436,319 were stopped during the week ended February 5 in line with the policy curtailing non-war work, the War Production Board announced.

During the same period, revocation orders previously issued halting two highway projects costing a total of $660,000, were canceled and authorization was given for work to continue.

Of the total cost of the projects stopped by WPB, $2,198,319 involved highway and bridge construction.

The week's figure brings to $1,274,165,628 the total cost of all projects which have been stopped either by WPB or the programming agency since October 23, 1942, when the Facility Review Committee was established to examine the relationship of construction work to the war effort.

The total cost of the projects which were stopped during the period January 30 to February 5, 1943, inclusive, follows: Highways and bridges, $2,198,319; Church, $5,000; Army civil works, $1,233,000; total, $3,436,319. This figure does not include a power project for which the cost was not given.

INDUSTRIAL SCRAP PRIMER

Scrap definitions, plant salvage, government ceilings and dealer scrap prices, go to make up a part of the contents of a "Primer of Industrial Scrap," published by the Business Press Industrial Scrap Committee, Empire State Building, New ork. The primer was developed to help industry back up the war program by the segregation and sale of manufactured and dormant scrap.

JITNEY PLANES AND 100,000 MILE TIRES — AFTER THE WAR

America's war machine will be converted to a peacetime basis with "amazing speed" by the new technology, Dr. Gustav Egloff, director of research of Universal Oil Products Company, Chicago, says in Chemical and Engineering News, publication of the American Chemical Society.

"Out of the welter of the war effort, values will flow that will increase man's effective span of life with greater satisfaction for living," Dr. Egloff declares.

Revolutionary advances in transportation are predicted. Automobiles giving 100,000 miles of trouble-free service, and with tires made from petroleum excelling natural rubber, are visualized. Jitney planes will course the skyways, and bring air travel within the reach of the average citizen, according to Dr. Egloff.

Plastics, he points out, will revolutionize the building arts, for the trend is to supplant many house-building and house-furnishing materials with plastics as soon as they can be released for civilian use. Plastics and new and more efficient fuels are seen as dominating factors in the development of transportation.

"Airplanes hurtling through the air at over 500 miles an hour carrying 1,000 or more passengers will make all parts of the world less than 24 hours away from Chicago," Dr. Egloff continues. "Luxurious as the Normandie and Queen Mary were for ocean travel, airships yet to come will operate with a smoothness and comfort unknown today.

"Low cost air travel and jitney planes should be within the pocketbook of every American. The competitive impact of the new airplane industry on all other forms of transportation may be quite serious.

"Increases in air travel will be made possible primarily by the capacity of the oil industry, increased by wartime demands to produce 100 and higher octane gasoline, and by the amazing developments in airplane design, material and construction that have been forced by the hard hand of war necessity.

"The same technique and the same processes that produce 100-octane gasoline in almost unlimited quantities for airplane use will also mean greatly improved fuel for automobiles, in fact, at least 50 per cent more miles per gallon. We may hazard a guess that the automobile to come after the war will give new pleasure to driving because of improved design, speed, and safety.

"In the short span of 25 years, man has entirely revolutionized transportation through the design and construction of the automobile and airplane and petroleum products. By careful study and experimentation, it is certain better rubber than was ever obtained from trees or plants can be produced from petroleum, and tires which will give 100,000 miles or more of trouble-free service are a reasonable expectation of the future."

The United States, Dr. Egloff asserts, has attained world leadership in research, and "has awakened to a miracle of scientific and technological development under our system of free enterprise."

"Private initiative is responsible for America's world leadership in science and industry. The tremendous effort that is being put forth in the United States, to win the war, is the work of private initative.

"The impact of researches, carried on by private corporations and speeded up enormously by the war, will bring vast changes in our peacetime economy. Their research departments were the organizations upon which many companies relied to bring them out of the depression. Their results are the backbone of the country's mobilization for total war."

Jones is *Already* Planning for 194?

Right now, Jones, like the rest of us, has just one job — the job of winning a war. His factory is turning out machine gun parts by the thousand — day and night.

But he's mighty anxious to get back to making stokers. That's his regular business. And he's already putting in a lot of extra hours planning a better stoker than he ever made. He won't be caught napping. While the shouts of Victory are still ringing out, Jones will be ready. He'll know exactly what he wants to do — and he'll do it.

There are thousands of Joneses. They're the men who were making bicycles and monkey wrenches and air conditioners before Pearl Harbor. They've learned a lot about new materials and new methods during these hectic days of armament production. And they're going to profit by their experience.

One of the important things that these men have learned is the advantage of using forgings instead of castings for certain parts. In the building of fighting equipment, *Forgings by Phoenix* have been given some of the toughest assignments. They have demonstrated their ability to provide extra strength and endurance without excess weight and bulk. Held to close tolerances, and with a minimum of machining necessary, they are an important factor in speeding up production and lowering costs.

In your plans for the future of your product, consider the use of *Forgings by Phoenix,* and when today's job is done, we'll be happy to serve you.

★ ★ ★ FORGINGS by PHOENIX ★ ★ ★

PHOENIX MANUFACTURING COMPANY

CATASAUQUA, PA.

When writing Phoenix Manufacturing Company please mention Purchasing

"FORM 53" Prevents Spawning of Printed Forms

Questionnaire Requisition Evolved by Purchasing Department Provides Rigid Control Over the Many Forms Used by United States Trust Company

By GEORGE HENRY

SOMETIME ago the Purchasing Division and various department heads of the United States Trust Company, one of Father Knickerbocker's venerable banking institutions contracted what might be termed a severe form-phobia. There were forms to the right of them, forms to the left of them, and forms on all sides of them. The case history reveals form duplications and wasted time incident to a plethora of forms.

The irritation and the agitation resulted in the creation of what was named the Forms and Supply Committee, of which the Purchasing Agent was one of the key members. Its purpose was to reform the forms situation, and its big job was to analyze the whys and whatfors of the 1256 forms used by the bank with a view to weeding out the unnecessary and the obsolete. In due course, following consultation with department heads, this committee wrought a sweeping change. More than a third of the forms found in the stock department were discarded, and a number of forms having more or less identical use in different departments were combined. The results were highly gratifying. The total was reduced to 821 forms, bringing about an estimated reduction of several thousand dollars in the forms inventory, to say nothing of eliminating the irritation and lost motion that were the primary cause of the investigation, and the saving in stocks and storage space.

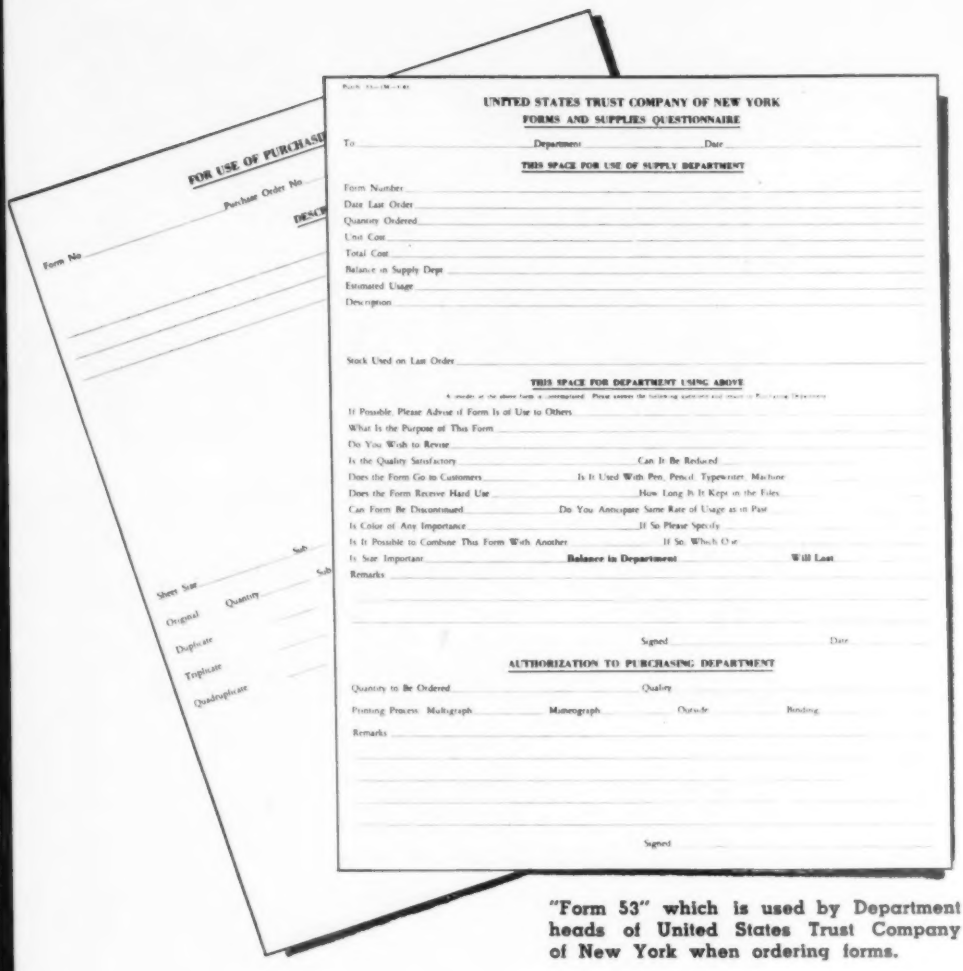
Many of the forms were not particularly fitted to the requirements of the General Accounting and Auditing Department, and another of the results of the study was placing the responsibility for the checking and development of all banking and financial forms with that department. Another was the creation of a separate Supplies Department with its own head who was made responsible for the stocking and distribution of all forms and stationery supplies. The Supplies Department and the Purchasing Department, though working together closely, are distinctly individual departments, being two of 10 departments reporting to a general supervisor who reports direct to the vice president of the institution.

R. F. Sheehan, Purchasing Agent, United States Trust Co., New York. He states that "Form 53" has materially helped to keep company forms at a minimum number.

A new form was born of this mild revolution that is worthy of special consideration. It is a "Forms and Supplies Questionnaire" evolved by the Purchasing Department. It is of especial interest for the reason that it has been an efficient means for preventing the development of unnecessary forms. As a matter of fact, the use of this form is mandatory in ordering or re-ordering forms of any kind, and according to Purchasing Agent R. F. Sheehan, through its use there has been a further reduction to but 751 forms now in the stock room.

Form 53—"Forms and Supplies Questionnaire", it will be noted, is divided into three sections. The upper third of the form, is filled in by the Supplies Department, and gives a brief history of the form being ordered—cost, estimated usage, quantity on hand and so on. The middle section of the form is filled in by the using department. Here the form is thoroughly reviewed in the answers to numerous questions as to its use, practicality, size, whether used with pen, pencil, typewriter or other machine, its importance as a file record, need for revision (if any), and possibility of combining the form with another.

This intimate review has proved invaluable in preventing the printing of



UNITED STATES TRUST COMPANY OF NEW YORK

FORMS AND SUPPLIES QUESTIONNAIRE

To _____ Department _____ Date _____

THIS SPACE FOR USE OF SUPPLY DEPARTMENT

Form Number _____
Date Last Order _____
Quantity Ordered _____
Unit Cost _____
Total Cost _____
Balance on Supply Dept _____
Estimated Usage _____
Description _____

Stock Used on Last Order _____

THIS SPACE FOR DEPARTMENT USING ABOVE

If Possible, Please Advise if Form Is of Use to Others _____
What Is the Purpose of This Form _____
Do You Wish to Revise _____
Is the Quality Satisfactory _____ Can It Be Reduced _____
Does the Form Go to Customers _____ Is It Used With Pen, Pencil, Typewriter, Machine
Does the Form Receive Hard Use _____ How Long Is It Kept in the Files
Can Form Be Discontinued _____ Do You Anticipate Same Rate of Usage as in Past
Is Color of Any Importance _____ If So Please Specify _____
Is It Possible to Combine This Form With Another _____ If So, Which One
Is Size Important _____ Balance in Department _____ Will Last
Remarks _____

Signed _____ Date _____

AUTHORIZATION TO PURCHASING DEPARTMENT

Quantity to Be Ordered _____ Quality
Printing Process: Multigraph _____ Mimeograph _____ Outside _____ Binding
Remarks _____

Signed _____

"Form 53" which is used by Department heads of United States Trust Company of New York when ordering forms.

unnecessary forms, and in perfecting forms being used. Furthermore, Purchasing Agent Sheehan, a graduate of the American Institute of Banking, has been a member of the Purchasing Department for ten years, and is quite familiar with the bank's accounting and general requirements in the large variety of forms used. The bottom section of Purchasing Form No. 53, is "Authorization to Purchasing Department" for ordering approved forms.

A majority of the forms in use in the United States Trust Company's operations are of necessity special banking forms used exclusively by different departments. There is of course a large number of general forms used by all of the departments and the ordering and maintenance of this type of form is entirely in the hands of the Purchasing Department. In event the Purchasing Agent sees the possible use of a form by another department, he takes the matter up with the head of that department. The general Accounting and Auditing Department is also consulted with a view to the elimination of any possible confusion that might result through the use of identical forms by one or more departments.

All proposed forms suggested by departments are referred to the General Accounting and Auditing Department. This department analyzes them from the standpoint of accounting records and designs the format for each form. After approval, the proposed form and authorization for purchases are forwarded to the Purchasing Agent, who determines the quality and weight of paper stock to be used. For permanent record forms, 100% rag paper stock is specified. For records that have a comparatively short life, say three or four years, a No. 1 sulphide stock is selected.

Quotations on printed work are usually sought from three sources. The Purchasing Department has been dealing with various printers over a period of years who have established their reliability for good work and fair prices and who can be depended upon to make deliveries on schedule—they are usually given three weeks in which to fill an order.

Stocks are ordered or reordered with an eye to their importance and use. Forms that are well established and not subject to revision are ordered on the basis of a year's supply, while those which it is felt may be revised or discarded are ordered in comparatively small quantities.

The importance attached to forms is attested by the fact that the Purchasing Department maintains a record of all forms purchased on a special Purchase Record. Names of vendors are shown on the back of the form and given a number. The obverse side shows form number and title, and history of purchases along with vendors' symbol numbers. This form bears the specific warning that "No Reorders are to be given without first consulting Department Head regarding possible changes."

A simple Inventory Control Record is kept by the head of the Supply Department, for each of the 751 forms used. In addition to showing the location of the stock by aisle and section, it records receipts and disbursements along with requisition number and department using the material.

"Requisition for Supplies" is the name of the form used by departments in securing material from the Supplies Department, and when placing an order with the Purchasing Agent for new supplies, forms, or equipment, of any kind. These forms carry the approval of the department head, and indicate to the Accounting Department that department to which the material is to be charged.

Orders by the Purchasing Department are made in triplicate, the original going to the vendor, the second copy is sent to the Supplies Department accompanied by the original requisition, and the triplicate copy is maintained by the Purchasing Agent for follow-up. The Supplies Department is held responsible for incoming supplies.

The Purchasing Department under ordinary conditions would be buying tabulating and accounting equipment, and other office machines such as typewriters, duplicators, adding machines, bookkeeping machines, and so on. The war situation has of course put a damper on activities along these lines, and the problem now is for the Purchasing Department to do its part in keeping existing equipment in the best possible condition. All equipment at present is under service contracts let by the Purchasing Department.

Activities in the stenographic department have been affected in particular by the war. Not only has the acquisition of new typewriters been stopped, but for the first time since it was organized in 1853, —90 years ago, the bank has found it necessary to make replacements in its male stenographic force, with stenographers from the ranks of the yclept gentler sex.

Several years ago, the policy was adopted of using but one make of type-

(Continued on page 158)

W. H. Rutherford, assistant to Purchasing Agent Sheehan, was formerly in charge of the Supply Department.

Simplified paper work speeds up production..

Mimeograph duplication eliminates wasteful rewriting and turns out sharp, permanently legible copies.

CASE HISTORY

Here is how one company recently made a notable saving in man-hours with the use of the Mimeograph duplicator.

Their paper work for production orders, identification cards, and progress records *was reduced to a single writing on* Mimeograph brand stencil sheet. The required number of copies for each form are run off easily, in a matter of minutes:

6 to 15 copies of production orders — one for each department that works on this part, plus one for production planning department . . . *6 to 500 copies of identification cards* — one for each "tote" box or pan . . . *2 copies of progress records* — one for the production department and one for the schedule follow-up.

Further savings in man-hours are realized *by the permanent legibility of these copies.* Mimeograph equipment produces sharp, clean highly readable copies that do not smear or fade in spite of rough handling.

If this case history applies to your own paper work problems, feel free to write for full details and actual samples. Address A. B. DICK COMPANY, Chicago.

Mimeograph duplicator

MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U. S. Patent Office.

The standard of speed and legibility in the one-writing system

(Continued from page 156)

writer, and at the end of three years' service trading the machines in on new ones. By staggering the trade-in, some fifteen to twenty new machines were bought each year. Formerly a monthly inspection service was employed, but due to shortage of service men this is now on a quarterly basis.

Purchasing Agent Sheehan maintains a file of catalogs and printed matter on equipment, materials and supplies, arranged in alphabetical order in binders. The subject matter ranges from office machines and supplies, to paints and janitor's supplies for the maintenance of the office building. "Our policy," he declared, "is to endeavor to secure at least a fair quality in all of our purchases. We certainly do not buy the cheapest material. We have found that even in the purchasing of stationery supplies of any kind that the quality factor is a money-saving factor in the long run."

Under long established policies, salesmen are not permitted to call on department heads, being directed to the Purchasing Department. "They are free to come in at any time," declares Mr. Sheehan, "regardless of what they are selling. I feel that they are my friends and that they can teach me a great deal, especially about new developments. If it is necessary for a salesman to contact a department head, it is usually in the presence of a member of the Purchasing Department for we too are much concerned about getting first hand information on new equipment and new products."

For establishing new sources of supply, the names of potential suppliers are obtained from business paper advertising and other forms of advertising matter, salesmen who call at the office, and sources recommended by other purchasing agents and friends. "We often give salesmen who are new to us a chance to quote on some of our needs, for the purpose of determining how they might fit into our picture and whether or not they can give us the service and quality that we demand," stated Mr. Sheehan. "Our open-door policy of treating with salesmen has been of definite benefit in these days when even file cabinets, desks, chairs and other types of ordinary office equipment that will match existing equipment, are difficult to obtain."

CROWLEY TO ISSUE MICROFILM LICENSES

Leo T. Crowley, Alien Property Custodian, Washington, announces that his office will now issue to responsible persons licenses for microfilm and photostatic reproduction of scientific and technical works printed abroad for which the custodian has seized copyrights.

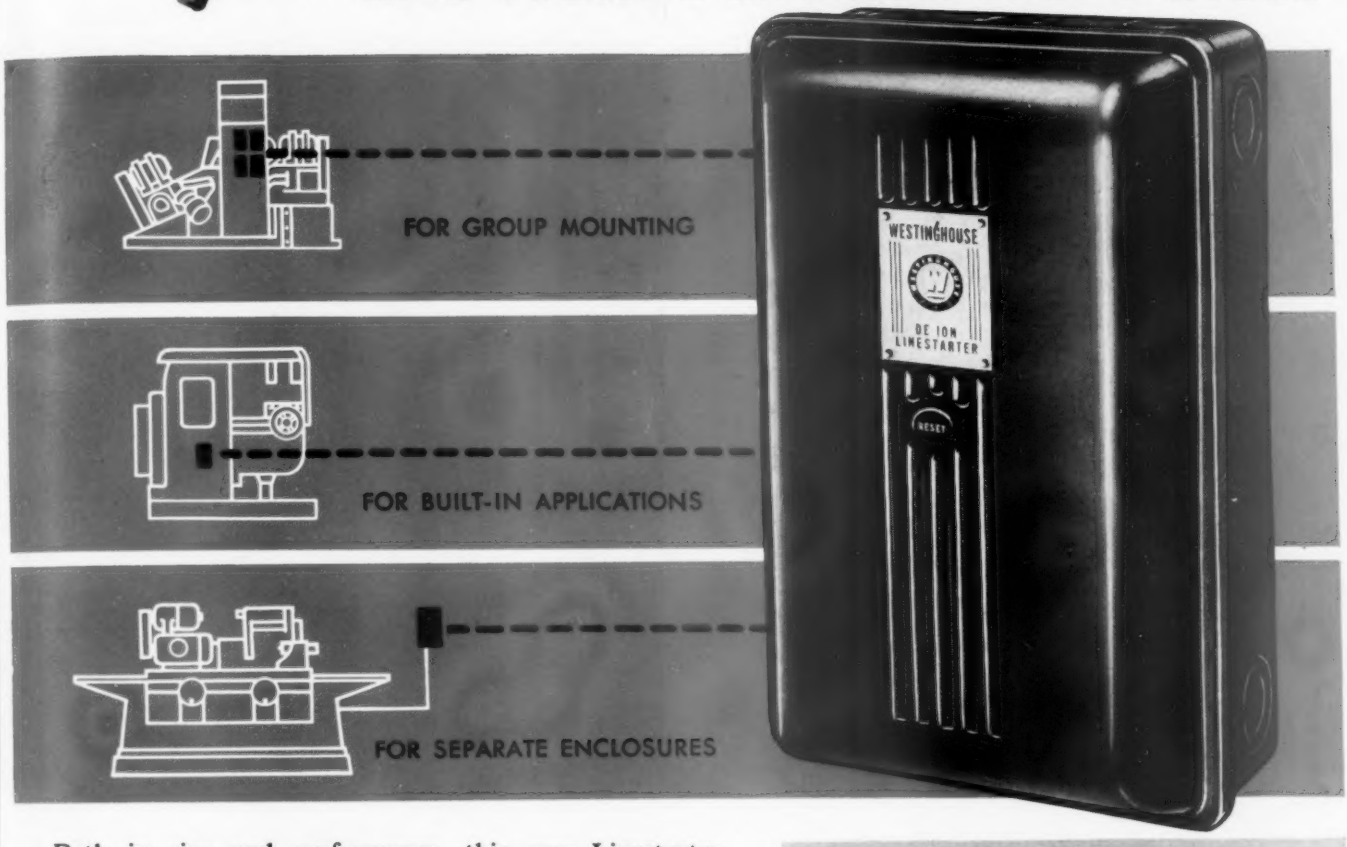
Pursuant to law, the custodian will continue to vest in himself all copyright interests of nations of enemy and enemy occupied countries in useful scientific works and will issue a royalty-free, nonexclusive, non-assignable, cancellable license to non-profit organizations desiring rights to microfilm or to make photo-

(Continued on page 160)

NEW LINESTARTER

FITS PERFECTLY

INTO TODAY'S MACHINE TOOL PICTURE



Both in size and performance, this new Linestarter measures up to the requirements of modern machine tool design for compactness, easy mounting and dependable, trouble-free operation.

It is compact—ideal for group mountings and built-in applications. No crowding—all parts are quickly front-accessible.

It is flexible—coil is front-removable. Overload relay may be adjusted for either manual or automatic reset.

Sturdy and efficient, it is designed to give across-the-line starting, stopping, and overload protection under grueling 3-shift schedules. The armature is self-aligning—features a knife-edge bearing of nitrided steel that guarantees positive, accurate contact alignment. Service life of contacts is greatly increased by new, double-break construction.

Ask your Westinghouse representative for further details or write for Bulletin 3185. Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., Dept. 7-N. J-21254

NEW DESIGN FEATURES

SIZE 2 LINESTARTER

for A. C. polyphase motors up to 15 hp, 220 volts; 25 hp, 440, 550 or 600 volts

- **"De-ion" arc quenching—prolongs the contact life.**
- **Hand or automatic reset Bi-metal overload relay.**
- **Knife-edge bearing—an exclusive Westinghouse feature.**
- **Interlocks—space for as many as four.**

Westinghouse MOTORS AND CONTROLS

Secret Weapon for Your War Against Time

Your Industrial Distributor has a "secret weapon" to help you win your toughest battles in the war against time.

It is not the wealth of valuable data crammed in his well-worn brief case. It is the inexhaustible *resourcefulness* concealed under his hat.

Many a stalemate on the production line has been avoided by his skill in blitzing or by-passing formidable supply problems. His "secret" is largely a product of pre-war practice, experience, and organization.

He has complete *information* on all sources of supply for almost any item.

His understanding of industrial design enables him to point out simple changes that will allow the *substitution* of "standard" items from stock when "specials" cannot be delivered in time.

He can help you get proper *Priority* ratings, and determine the standing of your orders under Allocation Classifications, since he must necessarily keep up-to-the-minute on current regulations.

He can assist you on any phase of an effective *Conservation* program and can provide repair parts and service to salvage irreplaceable operating equipment.

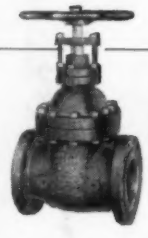
He can suggest practical methods for keeping equipment operating efficiently, and for preventing breakdowns that stall production.

When Time is pressing you for quick action, make use of the "secret weapon" your local Distributor has ready to help you deliver the goods, on time.

Your Jenkins Distributor is a qualified specialist on any questions of valve supply or maintenance.

Army-Navy "E" Pennant, awarded to Jenkins Bros. for high achievement in the production of war equipment.

Jenkins Bros., 80 White Street, New York, N. Y.; Bridgeport, Conn.; Atlanta, Ga.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill. Jenkins Bros., Ltd., Montreal; London, England.



JENKINS VALVES

For every industrial, engineering, marine and power plant service . . . in Bronze, Iron, Cast Steel and Corrosion-Resisting Alloys . . . 125 to 600 lbs. pressure.

So he says to me, "Find the answer . . . . Quick!"

1. WAS THE OLD MAN burned up? Remember that Acme order? 5 days behind schedule! He stomped in wanting to know why and then he yells, "Don't tell me. I'm going to get to the bottom of this BLANKETY BLANK business myself."

2. HE GOES TO Planning and they alibi that Receiving didn't have materials on time—so he storms into Receiving and finds the stuff was there TWO DAYS before receiving and inspection reports could be made out.

3. NEXT HE CHECKED Production and it was like this — the move order was lost and before anybody caught it and could check on it the job was sidetracked and delayed 24 hours while it was being rescheduled.

4. THEN AT ASSEMBLY he found TWO MORE DAYS lost because one little gadget wasn't through on time. The production order was illegible, "8,000" parts was misread "3,000," so 5,000 pieces hadn't been made.

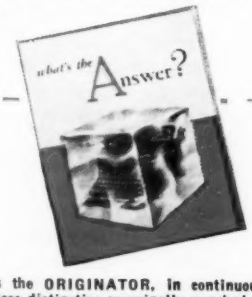
5. "5 DAYS LOST on this order because we can't get receiving reports on time, move orders are lost and production orders are illegible" he yelled, and I thought he'd bust an artery. Then he quiets down and tells me he wants the answers and wants 'em *quick!* Was I worried and then . . .

"I FOUND THE ANSWER IN STANDARD'S FREE BOOK"

For 30 years The Standard Register Company has been specializing on the problems that today are driving plant and office men to distraction, and it's all in this book. How to step up the flow of paper work as much as 50%. How to keep production moving by keeping production *detail* under perfect control. How to cut red tape and streamline paperwork. How to get more accurate, readable records. How to make one form do the work of two or more. How to save typewriters. How to simplify, systematize, and *control* war production through better, faster ways of handling all production records, orders and reports. How to get these better results with today's "green" clerical help.

You'll find it all in Standard's new 28-page illustrated book called "WHAT'S THE ANSWER?" Use the coupon today.

Standard Systems
of Industrial Control



Standard is the **ORIGINATOR**, in continuous business forms, of these distinctive marginally punched holes. They are Marks of Identity of the continuous forms of The Standard Register Company—"the Forms with the Punch."

THE STANDARD REGISTER COMPANY
304 Albany St., Dayton, Ohio

Gentlemen: Send me at once a copy of "What's The Answer?" containing full information on what you can do *at once* to end "paper-shuffling" so that war production rolls smoother and faster.

FIRM _____

NAME _____

ADDRESS _____

(Continued from page 158)

static reproduction of the works for the purpose of assisting in the war effort.

Licenses will also be granted to interested commercial organizations on attractive royalty arrangements.

Residents of this country desiring to reproduce seized scientific works by microfilm or by making photostatic reproductions are advised to secure licenses from the Alien Property Custodian, since the status of prewar "fair use" agreements with enemy nationals is now in doubt.

* * *

FIBER CANS AS SUBSTITUTE PACKAGES IN WARTIME

Restrictions on the use of critical metals have revolutionized packaging practices in many fields, declare R. P. Bigger, F. H. Bopp and T. E. Dobbins in report submitted at the Packaging and Container Section at annual meeting of the Technical Association of the Pulp and Paper Industry, New York. In spite of equipment shortages and growing governmental requirements, fiber cans are now finding wide application as wartime substitutes for metal containers.

Conventional fiber cans may be classified as either spirally or convolutely wound, according to the method of manufacture. To meet increased production demands, so-called lap-seam fiber cans are now being produced in larger quantities. In a number of instances, metal can equipment has been converted to manufacture containers of this lap-seam type. Restrictions on the use of metal have also led to the usage of a wide variety of paperboard ends for fiber-bodied cans and the introduction of several new types of paperboard closures.

Each of the three general types of fiber cans has its advantages and disadvantages. The spirally wound can is perhaps the most versatile of the three, but the convolute and lap-seam constructions have found extensive application.

In considering present packaging problems, the basic limitations of the fiber can must be realized. Fiber containers provide ideal packages for such dry products as salt, baking powder, cocoa, spices, cereals, scouring powders, tobacco products, chemicals and chemical specialties; some semi-moist products and semisolid oils, and certain types of liquids such as milk. It would appear extremely difficult to design fiber cans for commodities such as processed foods, beer and vacuum packed products. Fiber containers of radically new design, however, are now being developed as wartime substitute packages for such materials as paint and motor oil. One of the most difficult problems encountered in the production of such fiber cans is the design of suitable paperboard ends and closures.

In view of the keen competition which will inevitably rule the packaging world after the war, the container of the future will have to offer many advantages at low cost. The properties of the fiber can, which have enabled it to serve in so many wartime uses, should keep it in a place of prominence in postwar packaging.

CONTAINER CHANGES ALLOWED FOR BY OPA

Changes in container styles and sizes of frozen fruits, berries and vegetables resulting from war production board orders will be taken into consideration in calculating packer ceilings, according to announcement by the Office of Price Administration.

Under Amendment 3 to MPR 207, effective February 23, the packer may calculate his ceiling price for frozen fruits, berries and vegetables packed in sizes and container styles which he did not sell during the first sixty days of the 1941 pack—the base period of the order—by:

(1) Taking the price of the most closely comparable container style and size (which is no more than 50 per cent larger or smaller than the new size) in which the product was sold during the base period, and

(2) Deducting cost of the container, and

(3) Making any size adjustment in proportion to amounts of the contents, and

(4) Finally, adding on cost of the new container.

The result will be the new ceiling price. A similar pricing method recently has been used for canned fruits and vegetables, jams, jellies and preserves.

CORRUGATED PACKAGE REPLACES TIN

Good reason for anticipating that many packaging innovations, originally developed to revieve shortages of critical materials, will be retained as permanent improvements after the war is found in the 3-pound size corrugated cookie box designed by the Package Laboratory of The Hinde & Dauch Paper Company, Sandusky, Ohio, for Sterling Cake Company, Inc., Brooklyn.

Of sturdy die-cut construction, the attractive hexagon-shape package is some 75% lower in original cost than the tin container formerly used. In addition, it is 33-1/3% lighter in weight, and is shipped flat, thus effecting proportionate savings in shipping and storage.

The unusual construction and natural cushioning properties of corrugated board impart sufficient sturdiness to insure minimum breakage. Exhaustive tests by the user proved that the package can be safely

used as a unit shipper, and mailed as a gift without further packing.

Overall linenweave pattern and two-color printing make the box highly effective for counter display. Center-hinged lid raises to reveal merchandise assortment in two separate compartments. This feature, plus the attractiveness and durability of the corrugated package, contribute to high after-sale value . . . for the box can be used as a sewing basket or handy storage box for small household items.

RUBBER CONTENT LOW IN AMERICAN PLANTS

Nearly 2,000 varieties of plants found in this hemisphere have been tested for rubber since March 1942, by investigators of the department of agriculture at Cornell University, Ithaca, New York, it is announced.

A new quick process to indicate how much rubber and resins plants contain has been developed by the university rearchers. Only five minutes are required to give an approximate idea of the natural rubber in plant tissues, the university reports.

Most of the plants so far examined show rubber content too low for commercial use, but some contain sufficient resin to warrant further study as possible sources of materials for synthetic rubber, a recent report stated.

On the basis of the Cornell studies the Russian dandelion appears to be the most promising emergency rubber-bearing plant for growth in the North. The rubber content of this plant can be easily obtained by mechanical means and after rubber is extracted from the roots can also be used for alcohol production.

Professor Lewis Knudson, who is directing Cornell's plant research program said that in normal times the yield obtained from this variety of dandelion would hardly pay the cost of production here even though the seed and the residue of the crop could be used.

NEW COTTON YARNS HAVE STRENGTH OF LINEN

A new cotton yarn, which extensive tests have proved to be far stronger than any cotton yarn ever produced before, has been developed by United States Rubber Company, according to H. Gordon Smith, general manager of the company's textile division.

This yarn, called Ustex, has been approved by Wright Field for parachute harness, Mr. Smith said, and does not require the long staple cotton which is now a critical military raw material. It uses a type which is readily available and yet produces a yarn the equivalent of linen in strength. Orders have been received for more than a million and a half pounds, and the company will increase its pilot plant production of 5,000 pounds weekly to many times that figure. The first large unit, authorized by WPB, will be completed this month at the textile mills of the rubber company at Winnsboro, South Carolina.

"The new process is a combination of chemical and mechanical treatment," Mr. Smith said. "With this process it is possible to produce strong cotton yarns from regular grades of cotton without special carding, combing or twisting operation. In addition to having increased strength, cotton yarns produced by the Ustex method have good resistance to weathering and mildew."

The company's total production of Ustex yarns at present is under allocation for parachute harnesses. Experimental lots of special Ustex yarns for other military applications have been produced.

NEW RULING ON UTILITY RATES

An increase in utility rates, even though made as the result of automatic adjustment clauses based on increased taxes, fuel costs and similar items, cannot be made without prior notice to the Office of Price Administration, OPA ruled recently.

In a formal interpretation, OPA held that such rate increases come within the provisions of the Emergency Price Control Act as amended and OPA Procedural Regulation No. 11 even though the automatic adjustment provision in the utility company's contract may have been made before the Price Control Acts were enacted.

TYPEWRITERS

Typewriter rentals of the kind scheduled for rental rationing will be permitted up to May 1, without rationing certificates, according to OPA announcement. This extends time for certificate-free rentals scheduled to expire January 31, in Amendment No. 1 to Ration Order 4A.

AIN'T IT THE TRUTH

by Stern

Exaggerated? Of course, But isn't it true, Mr. Office Manager, that one of your headaches in connection with multiple-copy forms is the **weak copies?** Ask your Purchasing Agent to get you the facts on Old Town Dupli-Forms. Whether you are concerned with a ten part form or a hundred part form, Dupli-Form will give it to you—on an ordinary typewriter—distinct down to the dot of an "i" and the cross of a "t".

WHAT *Dupli-form* IS

Have any multiple copy form set up on an Old Town DUPLI-FORM. Your typist fills in the DUPLI-FORM . . . then runs off as many copies as you require on your fluid process duplicator.

WHAT *Dupli-form* DOES

No More Large Printing Bills! On a 25-copy form, 1000 DUPLI-FORMs will replace 25,000 printed forms!

No More Weak Copies! Whether you want a dozen copies or hundreds, DUPLI-FORM will give them to you . . every one clean and distinct with photographic accuracy.

No More Special Machines! With DUPLI-FORM every typewriter becomes a billing or manifolding machine Makes copies of pencil writing without register or special pencil

No More Fear of Errors! Instead of having to correct every copy, just correct the original DUPLI-FORM

No More Collating! Only the original DUPLI-FORM goes into your typewriter. No aggravation and waste of time to stuff forms with carbon paper and crowd into the typewriter.

No More Slipping! DUPLI-FORM guarantees precision registry . . . right down to the last line of the last copy. The form itself is duplicated along with typed-in-data.

SAVES PRINTING
SAVES TIME
SAVES MONEY

Old Town

RIBBON & CARBON CO. INC.

Foremost makers of ribbons and carbons for every use

50 PACIFIC STREET, BROOKLYN, NEW YORK, N. Y.

Yours for the Asking

Informative and Instruction Material Designed To Educate Employees and Speed Production

"The Casco Trouble-Shooter for Joint-Gluing"—This is the name of a non-technical hand book prepared by the Technical Service Department, Casein Company of America, 350 Madison Avenue, New York. It treats of glue joint complaints and their causes, gluing faults and their remedies, pressing, maturing, and so on. The technical department also has prepared a new specification chart which details glue recommendations for U. S. Government Specifications.

"Welding and Brazing Alcoa Aluminum." This is a 100 page pocket-size booklet—a completely rewritten edition of welding booklet published by the Aluminum Company of America, Pittsburgh, Pa. In addition to welding, it incorporates the art of brazing. It explains how to correctly use and work aluminum, and how to eliminate waste and scrap losses and reduce tool breakage.

"How to Sharpen Taps." This is the second of a series of folders on taps and tapping being isued by the Greenfield Tap and Die Corporation, Greenfield, Mass. Order as many as you need.

"Timely Wartime Tips on Fluorescent Maintenance." Proper care of fluorescent installations and how to get maximum lighting service therefrom, is the theme of small booklet published by the Lighting Division of Sylvania Electric Products, Inc., Salem, Mass.

"NoDrip Handbook." This 32 page book tells how to prevent and cure damaging condensation and sweat that forms on piping, fixtures, walls, ducts, ceilings, and so on, with NonDrip, a plastic cork coating. J. W. Mortell Company, Kankakee, Illinois.

"Kennametal Tool Manual." McKenna Metals Company, Latrobe, Pa., has issued vest pocket edition of manual for operators of metal cutting machines. In addition to text on care, handling and methods, it contains more than 100 drawings illustrating operations, styles, grinding, tool design, etc., along with tables on grinding wheel recommendations. The company has also issued a new catalog on Kennametal Steel and Metal Cutting Tools and Blanks.

"Rubber Goes to War" Film. This a 16mm film in black and white with sound track, in two reels having a running time of 21 minutes. It shows how some of the rubber you can't have is being used in war products. Film is available without charge by writing to Footwear Division, United States Rubber Co., 1230 6th Avenue, New York.

PLAN TO PUBLISH TOOL ENGINEERING HANDBOOK

Announcement is made by Otto Winter, president of the American Society of Tool Engineers, of plans to publish a Tool Engineering Handbook. The project is under the direction of the A. S. T. E. National Standards Committee, headed by E. W. Ernest, General Electric Company.

RECOMMENDATIONS FOR SAVING CRITICAL MATERIALS

"We no longer are "too rich" to worry—the Axis has more critical materials than we do." In this portentous declaration in "Wartime Conservation," lies the reason for its publication. "Wartime Conservation" is a 96 page easy-to-read, easy-to-understand booklet just released by Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., the purpose of which is to help America "Save Critical Materials Quick."

Covering the vast range of products manufactured by Westinghouse, it is designed to help users of such products make every possible saving, to avoid mistakes which may cause damage to costly equipment, and to get more production with present equipment.

The means for achieving these ends are explained by simple text, diagrams and

(Continued on page 168)

Prominent Users of Strathmore Letterhead Papers: No. 37 of a Series

out of the earth

to serve the nation

The Eagle-Picher Lead Company is serving in this war *by taking from the land* lead, zinc and minerals...*by giving back to the nation* vital materials that go into fighting tools for Uncle Sam; oxides and metals for batteries in jeeps and tanks, for lenses in cameras, for equipment in planes.

For 100 years, Eagle-Picher has built up an increasingly outstanding record of quality service. Today, this reputation is effectively conveyed to customers and contacts by the Company letterhead on Strathmore Bond.

Your letterhead should express...and help to build... the reputation of *your* business. Choose a fine paper, and *be sure* of the impression you make in your important correspondence. A letter written on Strathmore Paper costs only a small percent more than a letter written on the cheapest paper you might buy. Such plus value, for so little cost difference, is sound business economy. Write us for detail of "letter" cost.

Strathmore Papers for Letterheads: Strathmore Parchment, Thistlemark Bond, Bay Path Bond, Strathmore Bond, Strathmore Script, Alexandra Brilliant and Strathmore Writing.

STRATHMORE *MAKERS OF FINE PAPERS*

Strathmore Paper Company, West Springfield, Massachusetts

PAPER IS PART OF

TODAY'S PICTURE

Current Strathmore advertising points out how essential paper is to the war effort, features leading industries that use Strathmore in their Victory programs, stresses the point that good letterheads help maintain the reputation every firm is guarding today.

★ ★ ★

This series appears in:

FORTUNE
TIME
BUSINESS WEEK
UNITED STATES NEWS
NEWSWEEK
FORBES
ADVERTISING & SELLING
TIDE
PRINTERS' INK
SALES MANAGEMENT

When writing Strathmore Paper Company please mention Purchasing

When you want to know GO TO AN EXPERT

WHEN YOU WANT to know what make of paper to buy for your office letterheads, our advice is simply:

"Ask your printer—he knows paper."

He knows Rising's reputation for craftsmanship. He should—for years we've been supplying expert printers with fine papers for every printing purpose. He can tell you better than we that Rising quality will add much to the prestige of your business message—and little, if anything, to its expense.

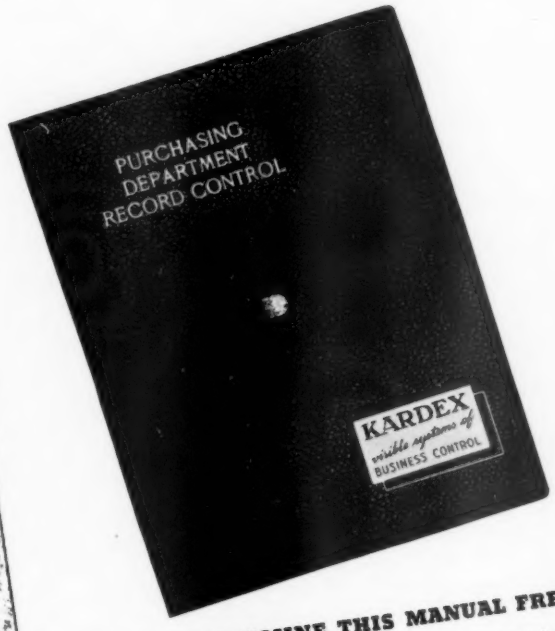
Three grades: Rising Bond (25% rag), Rising Line Marque (25% rag), Finance Bond (50% rag), Rising Parchment (100% rag). Prices on a par with other quality papers. The Rising Paper Company, Housatonic, Mass.

Rising Papers

ASK YOUR PRINTER—HE KNOWS PAPER

When writing The Rising Paper Company please mention Purchasing

THE MOST SUCCESSFUL AD *We've Ever Run* IN "PURCHASING"



YOU MAY EXAMINE THIS MANUAL FREE OF CHARGE

THESE SUBJECTS MINUTELY ANALYZED

PURCHASE REQUISITIONS
"REQUEST FOR BIDS" FORM
PURCHASE ORDER PROCEDURES
PROCUREMENT FOLLOW-UP
CONTRACT RECORDS
"MAKE AND HOLD" RECORDS
BUDGET CONTROL RECORDS
INSPECTION FORMS

This book is for Purchasing Department executives who are seeking more effective control methods for wartime procurement. You will find it clear cut in its description of a definite, workable plan for effective purchasing ... timely in its approach to your department's most perplexing problems.

Seldom does there come to your desk a study such as this, advertising a product and service so pertinent to your immediate needs. The fact that hundreds of famous firms ... large and small ... are using successfully the program that it outlines is an earnest recommendation that you send for it today.

Phone your local Remington Rand office ... or write today to Remington Rand, Methods Research Department, Buffalo, N. Y. You will receive your loan copy free and without obligation.

Another Kardex Production "Expediter"
by REMINGTON RAND INC.

Scores of readers of PURCHASING have asked to see this valuable manual. Many took special pains to thank us because it is so chock-full of powerful ideas for speeding and simplifying the procedures of the Purchasing Department, under the stress of wartime procurement and "manpower" difficulties.

Did YOU send for it when we first announced it? If not, do so today ... use the handy coupon below.

... and so we run it again now—this time with a coupon for your convenience in sending for this valuable manual.

●

SIGN AND MAIL IT TODAY!

REMINGTON RAND

3P43

Sirs:

Please send me, for free examination, your manual, "Purchasing Department Record Control." No obligation.

Name _____

Company _____

Street and Number _____

City _____ *State* _____

When writing Remington Rand please mention Purchasing

(Continued from page 164)

charts in the five sections of the book. The first of these—"from Generator to Motor" explains the way for critical material savings in selection, application and use of electrical equipment. Section 2—"on the Production Line" deals with such vital subjects as lighting, the welding line and electronic control for resistance welding, air cleaning, the industrial X-Ray and speed drive control. Section 3—"keep 'em running" is on maintenance and repair service. Section 4—"replacement, not substitution," tells of the properties of Micarta and Prestite, heavy duty plastics. And Section 5—"all in the day's work," details 21 ways in which Westinghouse is making substantial savings in critical materials, with the suggestion that the information on replacements and substitutions may point the way for others to save critical materials in their own plants.

MOTOR MAINTENANCE CARDS

General Electric Co., Schenectady, New York, has developed a motor record card (GES-1526A), of convenient size (4" x 6") for card files, which is being made available to all maintenance engineers. The card contains spaces on both sides for the recording of essential information on each motor as well as the nature and extent of inspection and repairs. By the use of this card for each motor in the plant, the maintenance engineer has the motor's history right at hand. In this record, excessive amounts of attention or expense will show up and the causes can be determined and corrected.

NEW DIRECTORY OF CONSULTING AND CHEMICAL ENGINEERS

The Association of Consulting Chemists and Chemical Engineers, Inc., 50 East 41st Street, New York, announces the 7th revised edition of the Classified Directory of Association of Consulting Chemists and Chemical Engineers, which shows names of members, their qualifications, scope, functions and activities, and record of work handled by them. Copy may be obtained without charge by applying to the association.

WAR-TIME LAMP BULBS ARE DIFFERENT

Few of our everyday products have undergone so complete a wartime change in materials as electric lamps. The changes are not obvious, so few people are aware that any revolution has occurred. Yet, everything in the makeup of incandescent and fluorescent lamps has been changed except the tungsten filaments. The brass screw base has been replaced with brass-plated iron which on a million filament lamps saves about 9500 pounds of brass. Two small drops of solder formerly fastened the leadin wires of filament lamps to the brass shell and consumed 60 tons of tin yearly. Now this tin is saved by use of a lead-silver alloy solder, claim Westinghouse experts.

The fluorescent lamp saves metal by utilizing a new kind of glass. Originally

Note the CARBINE...

"a weapon of great merit"

"Little has been said of the new army carbine, but we believe it to be a weapon of great merit. It is a short rifle, 36 inches long, and 5 pounds in weight, half the weight of the ordinary rifle. All the men and the officers in the infantry who have been armed with the pistol will carry the carbine instead. That includes sergeants and all commissioned officers up through majors. It holds 15 cartridges in the magazine and is semiautomatic, like the Garand rifle. It fires a .30 caliber cartridge and is accurate up to any distance that soldiers usually fire at the enemy. We are beginning to get production in volume."

ROBERT P. PATTERSON, *Under Secretary of War.*

TO OUR MILLIONS OF VALUED CUSTOMERS: Accounting and adding machines are still available (under WPB regulations) for purchase by plants engaged in war work.

Our maintenance service from coast to coast, which you have come to rely on, is being kept in complete and efficient operation.

Spare parts, too—we are providing for all your Underwood, Sundstrand and Elliott Fisher machines—as well as a complete line of carbon paper and ribbons, unsurpassed in quality, for every make of office machine.

UNDERWOOD ELLIOTT FISHER COMPANY, One Park Ave., New York

★ *Enlist Your Dollars* *Buy More War Bonds* *To Shorten The Duration*

Winchester carbines are now in mass production by

Underwood Elliott Fisher Company

Former and Future Makers of Typewriters, Adding and Accounting Machines

(Continued from page 168)

made with glass containing lead oxide, manufacturing techniques have been changed to permit use of lime glass thus saving 179,000 pounds on a million average-size fluorescent lamps. At present, engineers are redesigning the base of the fluorescent lamp to provide a one-piece plastic assembly; the object is to save vital nickel now used in the collar.

SOVIET PURCHASING COMMISSION ESTABLISHES WESTERN OFFICE

The Soviet Purchasing Commission in the United States has established Pacific Coast headquarters at Portland, Oregon, in charge of I. A. Eremin. Assisting Mr. Eremin are Commander Arakel S. Pirverdian and Lieutenant Commander Nicholas N. Smirnov.

SURVEY TO MAXIMIZE CIVILIAN GOODS PRODUCTION

A study of the progress that has been made to date in simplification and standardization in the field of distribution will be made for the Office of Civilian Supply, WPB, it was announced today by Joseph L. Weiner, Director.

In charge will be Irwin D. Wolf, Pittsburgh merchant and a consultant to Mr. Weiner, who has been engaged for several weeks in a similar study of the progress of simplification and standardization of civilian goods.

"Completion of this survey," Mr. Weiner said, "will give us a full picture of the extent of simplification to date and will provide the basis for a constructive program of action to maximize production of civilian goods and assure an efficient minimum distribution system."

Mr. Wolf will work with Dr. Donald R. Longman, newly appointed Chief of the Retail and Wholesale Section of the Office of Civilian Supply.

SEEK ORGANIC ACIDS FROM COAL

Carnegie Institute of Technology announces an arrangement with a group of the sponsors of the Coal Research Laboratory to undertake the development of commercial methods for manufacturing organic acids from coal. A sum of $40,000 has been appropriated for expenditure during the next two years on the project.

Research chemists at this laboratory have developed and patented methods of producing from coal a series of aromatic acids such as phthalic and mellitic, with substantial amounts of oxalic acid as a by-product. Small amounts prepared in the laboratory have been furnished to industry. The reports on use of these materials in plastics and synthetic rubber were so encouraging that further development was decided upon.

Fred H. Bosworth, Buying Specialist, Purchasing Department, Standard Oil Co. of Indiana, Chicago, was recently presented with a gold watch voted him by the board of directors in honor of his having completed a half century of service with the company.

ORDER SCHEDULING DETERMINED BY URGENCY APPRAISAL

Assurances have been given by WPB Production Vice-Chairman Charles E. Wilson to war contractors that orders involving production of critical common components to be used in the first half of 1943 will receive prompt consideration, even though they were not placed prior to the February 6 deadline. As emergency situations develop new orders will be scheduled on appraisal of urgency, Mr. Wilson said, in a prepared statement.

Perishable tools, shop supplies and maintenance items, or components needed for new facilities are not covered by the directive, which calls for early placing of orders, he said.

He pointed out also that instructions on ordering in his letter of January 20 to the claimant agencies applies to specified critical items only, and does not apply to all components. Also the order applies only to contractors who have received commitments for end-items, such as tanks, ships, guns, and so forth, or for components or parts which enter into manufactures of end-items. No existing priority regulations are revoked or modified in the instructions on ordering.

OCS DEPUTIES APPOINTED

The appointment of three deputy directors of the Office of Civilian Supply is announced by Joseph L. Weiner, Director. The appointments are: Charles Sumner Williams, Deputy Director for Operations; Arthur R. Burns, for Programs; and Harold Stein, for Projects. Mr. Williams will serve as official contact, assume responsibility for the clearance of all WPB orders, and serve as executive secretary of the Civilian Supply Committee. Dr. Burns will be responsible for the review and presentation of all civilian supply programs to the Requirements Committee, and will serve as chairman of the Review Committee.

NEW APPOINTMENTS ON WAR MANPOWER COMMISSION

Brigadier General William C. Rose has been designated as Chief of Executive Services, Office of the Executive Director, War Manpower Commission, it was announced by Paul V. McNutt, Commission Chairman. General Rose will review all new projects submitted to the WMC and refer those which justify attention to the proper bureau or service of the Commission.

Bruce D. Smith of New York City and Lake Forest, Illinois, it was also announced, has been appointed as Assistant Chief of Executive Services.

Lawrence A. Appley is Executive Director of the War Manpower Commission.

CONTROLLED SHIPMENTS

An official interpretation of two debated points in General Transportation Order T-1 has been issued by the Director General for Operations.

The ruling holds that the exemption granted to Army and Navy shipments by the order does not apply to materials on List I or List II attached to the order.

The interpretation also defines mileage as used in the order as the shortest available published tariff route, regardless of whether or not a shipment travels that route.

FANS, BLOWERS UNDER NEW LIMITATIONS

Control of production and delivery of fans and blowers has been placed under a new limitation order by the Director General for Operations.

The order issued (L-280) affects all types of new devices or machines that move compress or exhaust air by centrifugal, rotary or axial means, with certain definite exceptions specified in the order.

Scheduling delivery of all orders for new fans and blowers by manufacturers after February 28, 1943, is required by the new order. Under it the manufacturer must report monthly his delivery schedule for the next two months, the reported schedule cannot be changed except by specific authorization of the Director General, and no manufacturer or dealer may make delivery except on an approved order.

An "approved order" means any purchase order bearing a preference rating of AA-5 or higher or one approved by the Director General for Operations.

The control provision of L-280 does not apply to purchase orders for repair

(Continued on page 174)

(Continued from page 172)

parts within certain value limitations or to meet emergency breakdown situations specified in the order.

L-280 also provides that a manufacturer who cannot fill a purchase order within a required delivery date must return it to the proposed purchaser within 20 days.

COL. DOUGLAS C. MACKEACHIE

Col. Douglas C. Mackeachie, 42, General Purchasing Agent for the U. S. Army in the European theater of operations, was reported by the War Department, February 2nd, as missing in action. Col. Mackeachie left his post in England to return to this country by air two weeks prior to this announcement. A memorial service was held at the Calvary Baptist Church, Washington, D. C., February 19th.

In civilian life, Mr. Mackeachie was Director of Purchases for the Great Atlantic & Pacific Tea Company in New England, with offices at Boston, Mass. He came to Washington in October, 1940, as Assistant Coordinator of National Defense Purchases under Donald Nelson, and succeeded Mr. Nelson as Director of Purchases for the Office of Production Management and the War Production Board. Upon the entry of this country into the World War, he was assigned to the Army as Deputy Director of Procurement and Distribution for the Services of Supply, and was commissioned in May, 1942, taking up his duties in the European theater of operations shortly thereafter.

WILLIAM L.FELLOWS

William L. Fellows, Assistant to the Director of Purchases of the General Cable Company, New York City, died at the Nassau County Hospital, Mineola, Long Island, on February 9th, following a heart attack sustained while he was returning from work. Mr. Fellows was well known among Purchasing Agents, having had a broad experience in that field, where he formerly served as Purchasing Agent for the American Locomotive Works. He was a past president of the Eastern New York Association of Purchasing Agents. Immediately preceding his affiliation with the General Cable organization, he served as a buyer in the New York offices of the British Purchasing Commission.

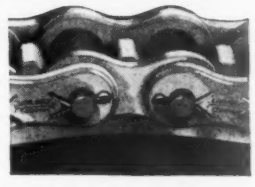
WILLIAM J. HARRIS

William J. Harris, Vice President in Charge of Purchases for American Car and Foundry Company and its subsidiaries passed away recently at his home in East Orange, N. J.

Hoist Design Based on Oil Field Experience Employs Sextuple Width Silverlink Roller Chain

• Developed to meet the requirements of the oil industry, the toughest service known, this sturdy, 50-ton Turney hoist has been enthusiastically adopted by shipbuilders to aid the speedy erection of the mighty fleet so vital to our victory.

From their past experience with chain, the manufacturers, Portable Rig Company, readily selected Link-Belt Silverlink roller chain and Link-Belt sprockets for the important function of transmitting power from motor to drums. Employing 1″ pitch, sextuple width chain, this drive provides great strength with comparatively light weight, positive power transmission, flexibility and unusual ability to withstand severe shocks of starting, stopping and holding heavy loads.



Cushioned Roller Assures Longer Wear

When the sprocket teeth mesh with Silverlink roller chain, the unique curled roller acts as a shock-absorbing spring which resists hard blows —reduces wear and repairs.

LINK-BELT COMPANY

Indianapolis, Chicago, Philadelphia, Atlanta, Dallas, San Francisco, Toronto
Offices, Warehouses and Distributors in Principal Cities

8996

LINK-BELT SILVERLINK ROLLER CHAIN

FOR DRIVES AND CONVEYORS

When writing Link-Belt Company please mention Purchasing

GOVERNMENT WANTS MANILA ROPE

Good stout Manila rope, which is getting scarce, is the only kind strong enough to do certain jobs for the Army Navy and Maritime Commission.

There are still considerable quantities of Manila rope in the country and the Government wants to buy all excess in the hands of business concerns and other owners. These holders are asked to report voluntarily all Manila rope they can spare, if it is 3/16 of an inch or more in diameter and 200 feet or more in length. The Government will pay 10 per cent above the owner's net cost, exclusive of freight charges.

Owners are requested to communicate at once with Murray Cook, 155 East 44th Street, New York City, who will arrange for purchases, acting as agent for the Government.

JOHN FRANK HEADS FAN MANUFACTURERS ASSOCIATION

John M. Frank, president of the Ilg Electric Ventilating Co. of Chicago, was elected president of the National Association of Fan Manufacturers, at a meeting of the association in Buffalo. The association is comprised of the principal companies in the industry conducting a national business, said to account for approximately 80% of the total fan volume. A poll indicated that the fan industry is now engaged 100% in war work producing fans and blowers, high octane gas, and products of a vital nature in connection with the synthetic rubber program.

Read the WAR NEWS before it happens

Tomorrow's battle headlines are being written in today's production records. And wherever Veeder-Root Counting Devices are installed, these records are being published continuously, in bold black-and-white figures. So any bad news can be corrected long before it gets into serious trouble . . . trouble that so often develops where there is no constant, accurate Control-by-Count.

For all types of war-production machines, you can get Veeder-Root Counting Devices . . . mechanically or electrically operated . . . to count in any terms or units of performance required. And any of these counters can be installed quickly and easily, without disrupting production. If your work counts in war production today, then help to make the war news good tomorrow. *Count on Veeder-Root.*

Keep War-Production Machines in Step... equip them with VEEDER-ROOT COUNTERS

VEEDER-ROOT INC., HARTFORD, CONNECTICUT, U. S. A.

When writing Veeder-Root Inc. please mention Purchasing

"E" AWARDS TO MANY FOR EXCELLENT PRODUCTION

Continental Rubber Works: Formal presentation of the Army-Navy flag to the Continental Rubber Works, Erie, Pa.,

Brigadier General Ray L. Avery at Continental Rubber Works, Erie, Pa.

and its employees took place at the Junior High School in Erie January 26. The flag was formally presented by Brig. Gen. R. L. Avery, commanding general at Edgewood Arsenal, Edgewood, Maryland.

Westinghouse: Brigadier General A. G. Gillespie, commanding officer of

(Continued on page 180)

ACHIEVEMENT THROUGH DESIGN

In outlining the three skills upon which NASHUA'S business is founded — *Creators, Chemists and Craftsmen* — the name "Creators" designates a staff of specially trained artists. Their thinking is not departmentalized; it is a broader function encompassing the whole organization. Many ideas which represent milestones in the progress of modern packaging originated at NASHUA.

Through *Design*, paper has been given an economic value that has helped it serve better the progressive needs of a nation. As the future brings new problems and new opportunities, NASHUA will have much that is new in design to stimulate post-war merchandising.

NASHUA GUMMED AND COATED PAPER COMPANY, NASHUA, N. H.

WE ARE CONVERTERS OF PAPER — COATING, GUMMING, IMPREGNATING, LAMINATING, PRINTING, WAXING. OUR BASE MATERIAL IS PAPER OF MANY TYPES. WE ARE ALSO CONVERTERS OF CELLOPHANE.

CREATORS · CHEMISTS · CRAFTSMEN

NASHUA

MAKES PAPER MAKE MONEY FOR YOU

★ BUY MORE WAR BONDS ★

When writing Nashua Gummed and Coated Paper Company please mention Purchasing

(Continued from page 178)

Watervleit Arsenal, Watervleit, N. Y., recently made the award of the Army-Navy "E" pennant to the East Springfield, Mass. plant of the Westinghouse Electric & Manufacturing Company. This is the eighth such award to be won by the Westinghouse company. Employee emblems were awarded the workers by Capt. Gordon C. Hall, accounting officer of the Boston Navy Yard. Lowell Thomas, radio commentator acted as master of ceremonies.

Howard Foundries: A white star, signifying that the high standards of production which won the Army-Navy "E" pennant six months ago have been maintained, has been awarded to the Howard Foundry Company, covering the company's aluminum and magnesium divisions in Chicago, and bronze division in Aurora.

Celanese Celluloid Corporation: The employees of Celanese Celluloid Corporation, the Plastics Division of Celanese Corporation of American, have received a citation from the Chemical Warfare Service for outstanding performance during 1942.

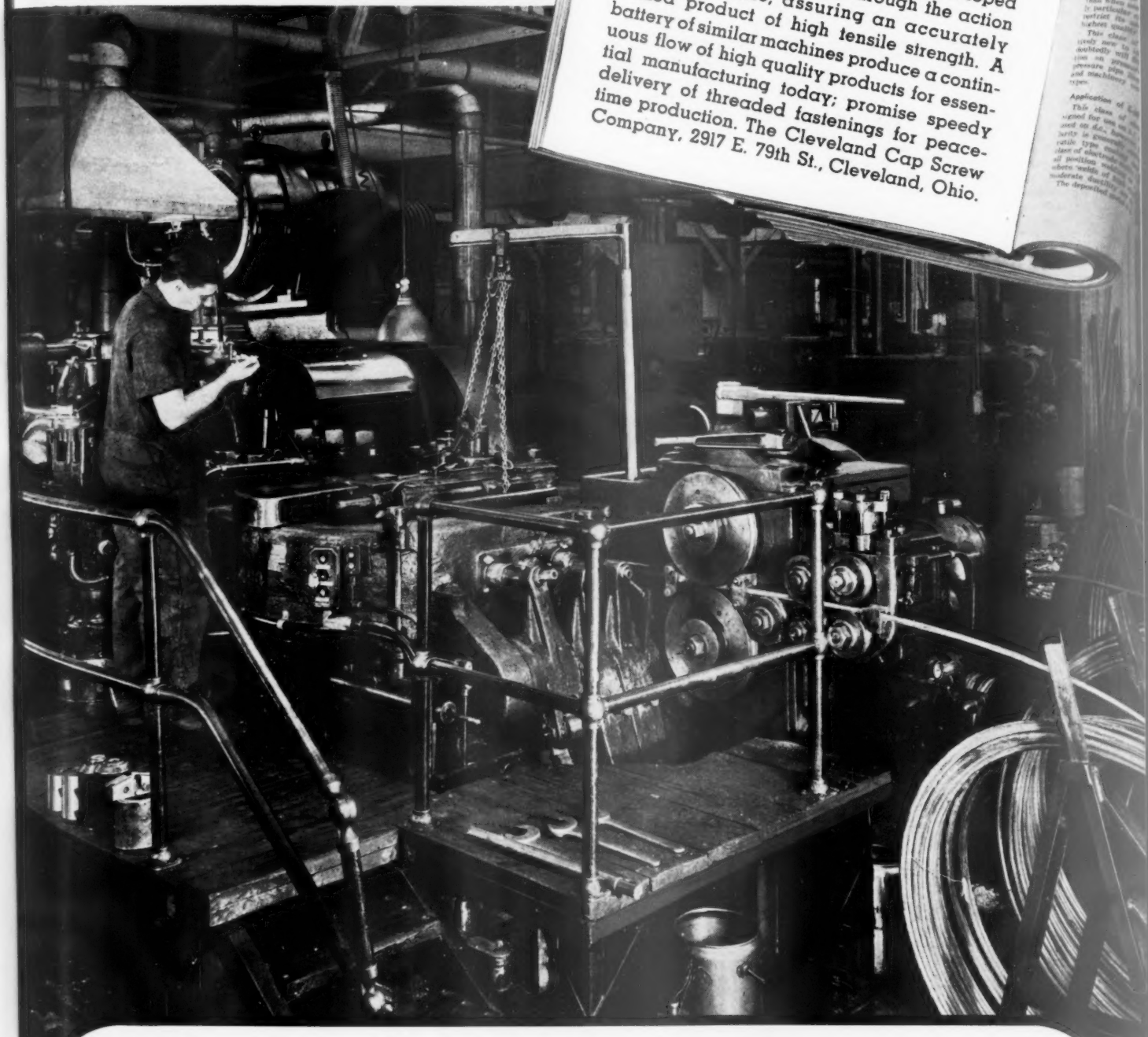
Nashua Gummed & Coated Paper Company: This company was recently awarded the coveted "T" to add to its Minute Man Flag as a result of having its employees pledge more than 11% of the total payroll for war bonds. At the end of a three-day drive under the di-

(Continued on page 182)

Largest BOLTMAKER Speeds Cold Heading Production

Modern methods help you get high-grade products faster at Cleveland Cap Screw Co.

A RECENT development of interest to users of headed and threaded products is the unusual machine which processes raw material (steel "wire") into the completed product—an outstanding example of modern manufacturing methods employed at The Cleveland Cap Screw Company. The principles of the Kaufman Process, as developed in this plant, are applied through the action of this machine, assuring an accurately formed product of high tensile strength. A battery of similar machines produce a continuous flow of high quality products for essential manufacturing today; promise speedy delivery of threaded fastenings for peacetime production. The Cleveland Cap Screw Company, 2917 E. 79th St., Cleveland, Ohio.



Cleveland Cap Screws

Set Screws and Special Upset Parts

Made by the Originators of the Kaufman Process for Greater Strength and Accuracy

Specialists for 26 years in Headed and Threaded Products

WAREHOUSES

CHICAGO: 726 W. Washington Blvd. . **HAY**market **1392**
PHILADELPHIA: 12th & Olive Sts. . **POP**lar **7530**
NEW YORK: 47 Murray St. . . . . **BARC**lay **7-5088**
LOS ANGELES: 1015 E. 16th St. . . **PROS**pect **8326**

(Continued from page 180)

rection of Sales Manager E. W. Wilson of Nashua's Surehold Division, 99% of the employees had pledged more than $240,000 a year for war bonds.

Philco Corporation: The Philco Corporation, Philadelphia, has been awarded the Army-Navy "E" with a white star for continued "meritorious service on the production front." The original "E" award presentation was made on August 14, 1942—one of the first in the country.

Wyckoff Drawn Steel Company: Employees of the Ambridge, Pa., and Chicago plants of the Wyckoff Company have been awarded a renewal of their Army-Navy "E" for an additional six months. Wyckoff employees were first honored in January 1942 with the Navy "E"; in April they received the All-Navy "E", followed in August by the Army-Navy "E" with added star. With the latest award, the Wyckoff Army-Navy pennant now carries two stars.

Handy & Harman: G. H. Niemeyer, president of Handy & Harman, presided at new pennant-raising ceremonies February 20 at the company's principal plant, Bridgeport, Conn., memorializing a renewal of the Army-Navy "E" award.

C. O. Jelliff Manufacturing Corporation: With Lieutenant W. J. Goedert, United States Army Air Corps, as master of ceremonies, the C. O. Jelliff Manufacturing Corp., Southport, Conn., was presented with the Army-Navy "E"

(Continued on page 184)

FACTS ABOUT PLASTICS

Plastics are materials created with specific properties to fulfill required functions. If your product lends itself to plastics, and you select the right plastic for it you should obtain one or more of these results: improved performance, lower cost, better design.

Since 1894, General Electric has been making plastics parts, because plastics do certain jobs better than other materials. Today—in 1943—General Electric is the largest producer of plastics parts in the United States, manufacturing thousands of plastics products for improved combat weapons and essential industrial equipment.

For complete information about plastics—how you can use them efficiently and profitably—write Section C-3, One Plastics Avenue, General Electric Company, Pittsfield, Mass.

PLASTICS DEPARTMENT
GENERAL ELECTRIC
PD-3

(Continued from page 182)

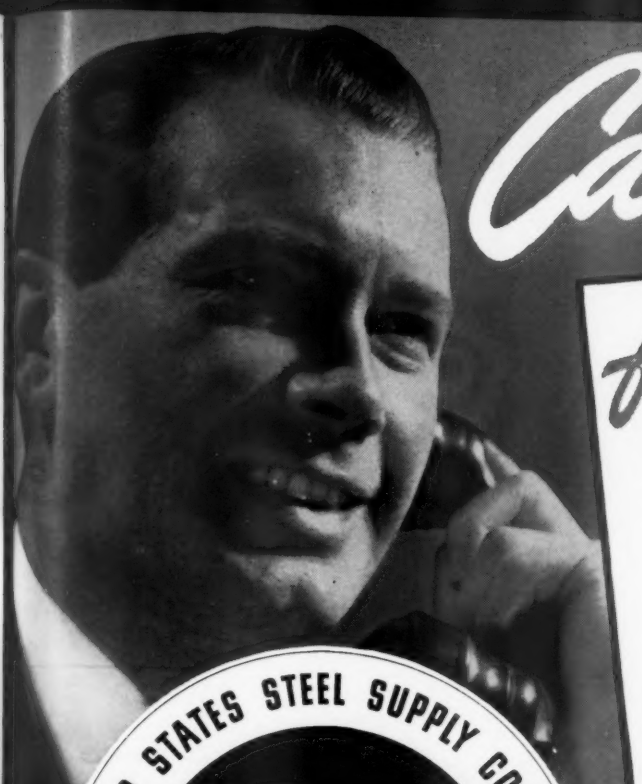
burgee, and employees received the coveted "E" pins. The pennant presentation was made by Lieut.-Col. Howard D. Norris, Special Assistant to District Supervisor, Eastern Procurement District, U.S.A.A.C., to General Manager-Secretary Henry H. Rennell. Lieut. John W. Power, United States Naval Reserve presented the "E" pins to an employee's committee.

Ontario Works, General Electric Company: At Ontario, California, the Army-Navy "E" award was presented by Colonel Stephen J. Idzorek, U. S. Army Air Force, to Works Manager W. H. Tangeman. A token bestowal of "E" pins for the employees was accepted by A. C. Sanger. The ceremonies were attended by 3,000 people.

The DeVilbiss Company: During impressive ceremonies at its Toledo plant, the DeVilbiss Company and its employees were presented with the Army-Navy Award for high achievement. Allen D. Gutchess, president of the company received the pennant from Lieut. Col. T. H. Eickhoff, Asst. Chief, Cleveland Ordnance District.

The Stanley Works: Ceremonies for the awarding of the Army-Navy "E" pennant to the main plant of The Stanley Works, were held at New Britain, Conn., January 20. R. E. Pritchard, president.

(Continued on page 186)



Call us

for GENERAL PURPOSE STEELS

Steel products, tools, machinery and equipment

Like yours, our first job is to speed war production. So, if your production on a war job is in danger of being slowed down for want of some piece of steel—call our nearest warehouse. Many such calls have kept wheels turning.

Although our stocks are not what we wish they were, what we have can be yours—in a hurry—subject, of course, to priority restrictions.

If we don't have what you need, we'll do everything we can to help you find a source of supply. So try us—note our phone and teletype numbers below, at the left.

for NATIONAL EMERGENCY ALLOY STEELS

These new alloy steels were developed as substitutes for the old style alloy steels to save critical materials such as nickel and chromium. They cover a wide range of properties—were especially designed to meet present conditions. In fact, many "NE" steels are actually out-performing the steels previously used.

We welcome your inquiries and will gladly assist you in determining the grades best suited to your needs. Telephone, write or wire the warehouse nearest you.

for AIRPLANE MATERIALS

Our Chicago Warehouse has been designated by the War Production Board as a warehouse to distribute the following aircraft products:

WD-X-4130 Sheets, *Open Hearth, Normalized, Pickled and Oiled to Spec. AN-QQ-S-685, Condition N. All gauges .016 to .50 sheets 18 x 72".*

Stainless Steel Rounds, *Spec. AN-QQ-S-771.*

Stainless Sheets—*Spec. AN-QQ-S-772. Spec. AN-QQ-S-757.*

These materials are for use in airplanes only and available only to the aircraft industry and sub-contractors. If you are eligible for these materials, phone, write or wire: United States Steel Supply Company, P. O. Box MM, Chicago, Ill. Telephone, BRUnswick 2000—Teletype CG. 605.

UNITED STATES STEEL SUPPLY COMPANY

USS STEELS

SERVICE

CHICAGO		BRUnswick 2000
	Teletype CG. 605	
BALTIMORE		GIlmore 3100
BOSTON		STAdium 9400
	Teletype BRTN. 10	
CLEVELAND		HEnderson 5750
	Teletype CV. 153	
PITTSBURGH		CEdar 7780
	Teletype PG. 475	
ST. LOUIS		MAin 5235
TWIN CITY -	St. Paul, Minn.	NEstor 2821
	Teletype STP. 154	
NEWARK, N.J.		BIgelow 3-5920
BErgen 3-1614 -		REctor 2-6560
	Teletype NK. 74	

UNITED STATES STEEL SUPPLY COMPANY

(formerly Scully Steel Products Company)

UNITED STATES STEEL

(Continued from page 184)

made the address of acceptance, and a committee of eight employees received the token pins. The meeting was addressed by Governor Raymond M. Baldwin. Ernest W. Christ, vice president, acted as master of ceremonies.

Crane Company: At what is reported to be the largest indoor Army-Navy "E" Ceremony that has been held, with an

President J. H. Collier
Crane Co., Chicago

attendance of about 15,000, Rear Admiral Clark H. Woodward presented the Army-Navy "E" Pennant to J. H. Collier, president of Crane Company, Chicago, and Col. J. F. Butler presented the "E" pins to six employees who had been selected to receive this honor for their fellow workers. The ceremonies were broadcast over the complete Blue Network.

Koppers Company: At ceremonies within the plant of the Koppers Company, Baltimore, Md., American Hammered Ring Division, Rear Admiral E. M. Pace, Jr., director of material in the Bureau of Aeronautics, presented the "E" pennant to Vice President Allen W. Morton. Col. Richard N. Atwell presented lapel pins to representative employees.

Formica Insulation Company: Col. Alonzo M. Drake, Detroit, Army Air Force Central District procurement supervisor, presented the "E" pennant to President D. J. O'Conor of the Formica Insulation Company, Cincinnati, Ohio, and Commander G. H. Bowman, Cincinnati, Navy Department Inspector, gave "E" pins to the Formica employee representatives. The ceremonies were broadcast over sereval radio stations. President O'Conor termed "the meriting of this award as the greatest achievement in our 30 years' history."

NAMED ELECTRONICS DEPARTMENT

The General Electric Radio, Television and Electronics Department will henceforth be known as the Electronics Department, according to an announcement by Dr. W. R. G. Baker, Vice President in charge of the department.

Foxboro Quick-Check Instrument Maintenance saves shut-downs, repairs, lost production

Now's the time to block off any chance of interruptions in the operation of your equipment. For, war times demand full-time production from every plant . . . without replacements or repairs requiring war materials or manpower.

Here's an easy way to *make sure* of continuous top performance from your instruments. Send for free copies of Foxboro Quick-Check Maintenance Cards for each type of instrument you employ. These handy 8½x11" cards give A-B-C instructions for preventing damage to your instruments. So simple, even "green hands" can't go wrong. Equally useful for Foxboro or other standard instruments.

Take this easy step for wartime conservation. Write today for Foxboro Quick-Check Cards, specifying different types of instruments in your plant (recorders, controllers or indicators for temperature, pressure or flow). **The Foxboro Company, 178 Neponset Avenue, Foxboro, Mass., U. S. A.** Branches in principal cities of U. S. and Canada.

FOXBORO
REG. U. S. PAT. OFF.
Instruments

RECORDING • CONTROLLING • INDICATING

When writing The Foxboro Company please mention Purchasing

AMONG THE PEOPLE YOU BUY FROM

Robert Bruce, formerly managing editor, Prentice-Hall, Inc., has been named Advertising and Publicity Manager for E. F. Drew & Co., Inc., New York.

Paul Meelfeld has been named Manager, Advertising and Sales Promotion, Hinde & Dauch Paper Co., Sandusky,

PAUL MEELFELD

Ohio. He has been associated with the company since 1914, and for the past six years has been advertising manager.

W. A. Neracher, founder of Beaver Pipe Tools, Inc., Warren, Ohio, was elected chairman of the board, at a recent

(Continued on page 190)

Is a Saboteur at Work in Your Shipping Room?

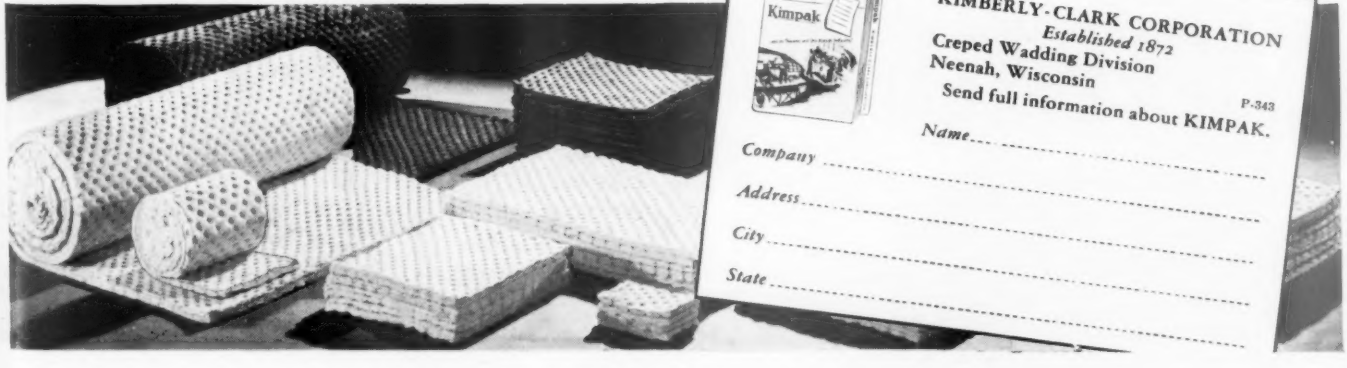
■ Right now there may be a saboteur working in your shipping room. A saboteur that causes vital war products to be delivered in damaged or useless condition... that causes the needless waste of war production man-hours as well as war-winning materials.

You can banish that saboteur from your shipping room! Here's how: standardize on KIMPAK* for packing protection. KIMPAK is the protective material that guards large and small war products against breakage, chipping, chafing...that protects highly polished surfaces from scratches, press markings, "burning"

If moisture is one of your shipping hazards, there's one type of KIMPAK that's made moisture-resistant to protect your product against water and dampness. Or if liquid-leakage from containers is your shipping problem, there's another type of KIMPAK that absorbs up to 16 times its own weight in liquids! Regardless of the size, shape or material of your product, there's a size and thickness of KIMPAK to protect it — *and economically.* Write for information.

PACK WITH
Kimpak
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES
CREPE WADDING

*KIMPAK (trade-mark) means Kimberly-Clark Wadding.



When writing Kimberly-Clark Corporation please mention Purchasing

(Continued from page 188)

meeting of the board of directors; W. A. Phillis, was made president and general manager; M. W. Bechtel, executive vice president and treasurer; C. W. Shafer, vice president, manufacturing; E. R. Barkley, vice president, Sales; and R. C. Mellinger, vice president, accounting.

Edward V. Brewer has been appointed executive assistant to William H. Yates, president of the United Wall Paper Factories, Inc., Chicago.

Westinghouse "Bond-a-Week" club, said to be the only organization of its kind in the world, now has 100 members buying war bonds every seven days. Founder of the club is Esley Cleckner, tool hardener.

Dr. Alphonse Pechukas has been appointed Research Director of the Columbia Chemical Division of the Pittsburgh Plate Glass Company, Pittsburgh. Dr. Pechukas is but 28 years old. Dr. Franklin Strain has been named Assistant Research Director of the Division.

Chester F. Conner, Manager Distributor Sales, Industrial Products Division, The B. F. Goodrich Company, has been appointed to the staff of advisers on mechanical rubber goods in the Office of Rubber Director, War Production Board, Washington.

George H. Adams has been elevated to the position of executive vice president of the Bunting Brass & Bronze Company,

(Continued on page 192)

Tool Conservation Begins in the Tool Crib

Photographs Courtesy Weatherhead Company, Cleveland, Ohio

WITH GAGES IT'S System

Before a gage is returned to the storage rack, it is thoroughly checked and inspected, and any adjustments or repairs needed are made or ordered.

Felt-lined individual compartments protect the gages from injury and provide a practical visual check on the gage stock.

Metal check method of issuing and card record of stock condition, with carefully trained attendant, assure positive control of entire gaging system. This "Tool Crib" is air conditioned.

Well-equipped factories in mass production industries do not select their gages haphazardly or just by chance. Their gaging systems are completely integrated and adapted to their particular requirements. But no matter what a plant's gaging needs, all gaging systems should include at least three fundamental features:

1 **Adequate checking and measuring equipment** — gages need constant checking for significant wear, damage or tampering.

2 **Convenient, safe, systematic storage** — poor storage conditions can ruin gages even before they are used once, and a lost or misplaced gage means loss of valuable time as well.

3 **A positive accounting method** — when new gages are needed, they are usually needed badly, therefore proper accounting for every gage at all times avoids disruption of the gaging system through delays in anticipating requirements.

GREENFIELD TAP AND DIE CORPORATION
GREENFIELD, MASSACHUSETTS
DETROIT PLANT: 5850 Second Boulevard
WAREHOUSES in New York, Chicago and Los Angeles
In Canada:
GREENFIELD TAP AND DIE CORP. OF CANADA, LTD., GALT, ONT.

ARMY E NAVY

GTD GREENFIELD

TAPS · · · DIES · · · GAGES · · · TWIST DRILLS · · · SCREW PLATES

When writing Greenfield Tap and Die Corporation please mention Purchasing

(Continued from page 190)

Toledo, with supervision over all manufacturing, sales and research activities.

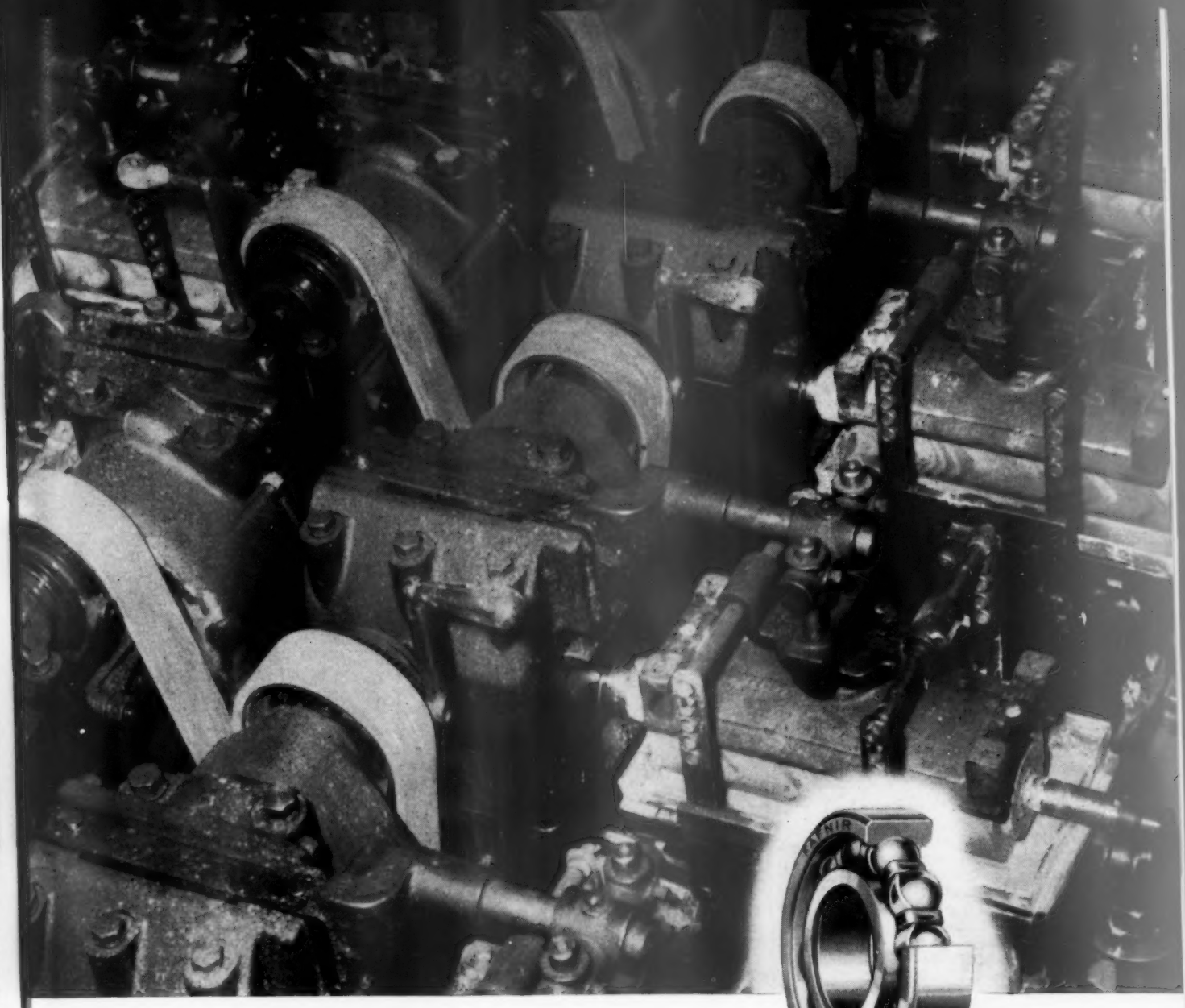
S. H. Hobson was elected a member of the board of directors and president of the George D. Roper Corporation, Rockford, Illinois. Officers reelected at a recent

S. H. HOBSON

directors' meeting are W. E. Derwent, E. Carl Corby and J. P. Curtin, vice presidents, and Floyd K. Lawson, secretary-treasurer. Mr. Hobson started with the organization 28 years ago as assistant foreman.

Richard Calvert, sales representative in eastern and central Pennsylvania for the

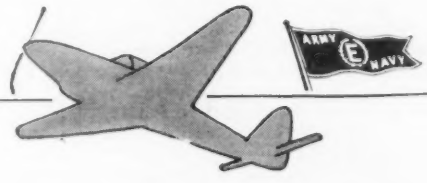
(Continued on page 194)



AN ARMY that marches on a Factory Floor

Imagine! . . . you surely can . . . the prodigious number of industry's "marching" machines. These machines never hear such a command as, "at ease"! They keep up the same relentless pace through one shift and the next . . . 24 hours every day. They keep our pilots in the air. They keep our tanks rolling. They keep our fighting men on the go, with blazing guns. Their steady whirring, humming, clicking, pounding is the Victory song of the nation!

The Fafnirs working here . . . 7 of them in each gearbox, 28 more on the shafting of this 100-foot machine . . . are built to *stay on the job* under tough, abrasive conditions. Like the millions of Fafnirs serving with the fighting forces, and the millions in other industrial machines here at home . . . these Fafnirs are "taking it". Their service records can already be stamped, "far beyond the call of normal duty"! The Fafnir Bearing Company, New Britain, Connecticut.



FAFNIR

BALL BEARINGS

THE BALANCED LINE - FOR ORDNANCE, AIRCRAFT AND INDUSTRIAL MACHINERY

(Continued from page 192)

Carpenter Steel Company, has retired after 30 years' service. He has been succeeded by Avard Taylor.

Richard A. Hutchinson, vice president of the Studebaker Corp., Herbert M. Prior, vice president of the Continental Bank & Trust Company, and Einar Hammer, president of L. W. Minford & Company, have been elected directors of the Visible Index Corporation, New York.

Charles W. Test has been made district sales manager of the Philadelphia District, Youngstown Sheet and Tube Company, with offices in Philadelphia. He succeeds H. E. Richardson, deceased.

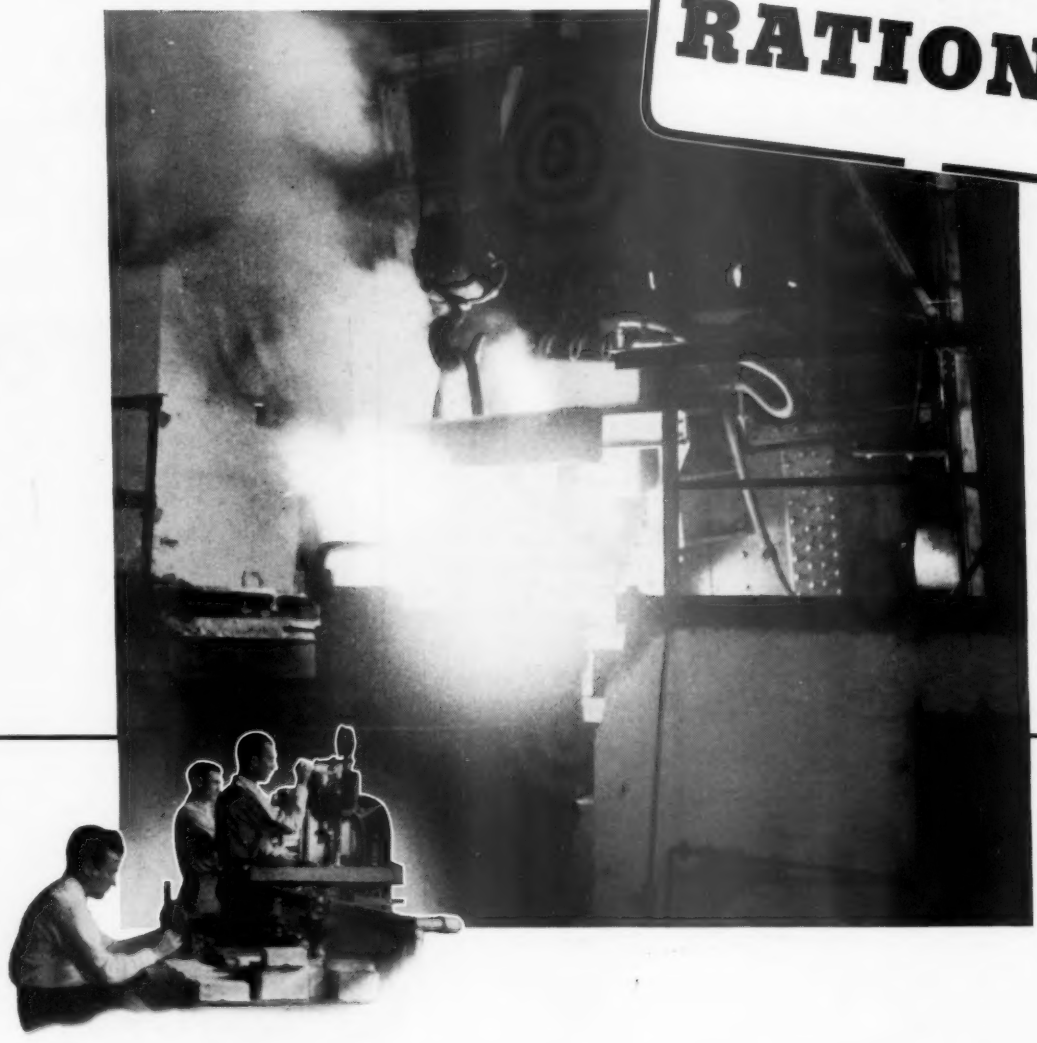
Louis F. Theurer, industrial sales manager, Milwaukee Paint Division, Pittsburgh Plate Glass Company, has been appointed West Coast divisional director, succeeding Floyd S. Green, retired. R. I. Ogle of the Chicago territory, succeeds to the Milwaukee post.

Gould Grant Rheuby has retired as vice president, director and member of the finance committee of the Hercules Powder Company. Charles A. Bigelow, vice president, succeeds Judge Rheuby on the finance committee.

Leon E. Jeanneret has been appointed Manager of Sales of the Welded Tube Division of the Babcock & Wilcox Co., with general office and plant at Alliance, Ohio. Edward A. Livingstone has been

(Continued on page 196)

JESSOP QUALITY... NOT RATIONED



• The Jessop standard of quality, resulting from the accumulated experiences of more than forty years of fine steel making, is being maintained today despite unprecedented production demands . . . THERE'S NO RATIONING OF JESSOP QUALITY.

Using modern production methods and facilities, each manufacturing step, from the selection of raw materials to the final rolling and treatment, is controlled by accurate metallurgical and chemical supervision.

Our wide experience assures reliable assistance in solving problems relating to selection and application of tool steels. Jessop warehouses are located in the principal war production centers to give prompt service.

JESSOP STEEL COMPANY
WASHINGTON, PENNSYLVANIA

ARMY NAVY

Jessop Steels
CHICAGO • CINCINNATI • CLEVELAND
DETROIT • HARTFORD

JESSOP STEEL CO. FINE JESSOP STEELS WASHINGTON PA.
Est. 1901

Carbon · High Speed · Composite Tool Steel · Special Alloy · Stainless · Stainless-Clad (Silver-Ply)

When writing Jessop Steel Company please mention Purchasing

(Continued from page 194)

appointed General Sales Manager of the division. William J. Thomas, manager of the Mechanical Tube Sales of The Babcock & Wilcox Tube Co., Beaver Falls, has been appointed assistant general sales manager of the company.

S. Caplan succeeds C. F. Hanson as Research Manager and Acting Technical Director of the Irvington Varnish and Insulator Co., Irvington, N. J. Mr. Hanson has been appointed Chief Consulting Engineer.

American Optical Company, Southbridge, Mass., is celebrating its 110th anniversary. With the completion of a lens-grinding plant at Brattleboro, Vt., the company now has four lens-grinding units. Established in 1833 as a one-man concern, it now employs more than 12,000 men and women.

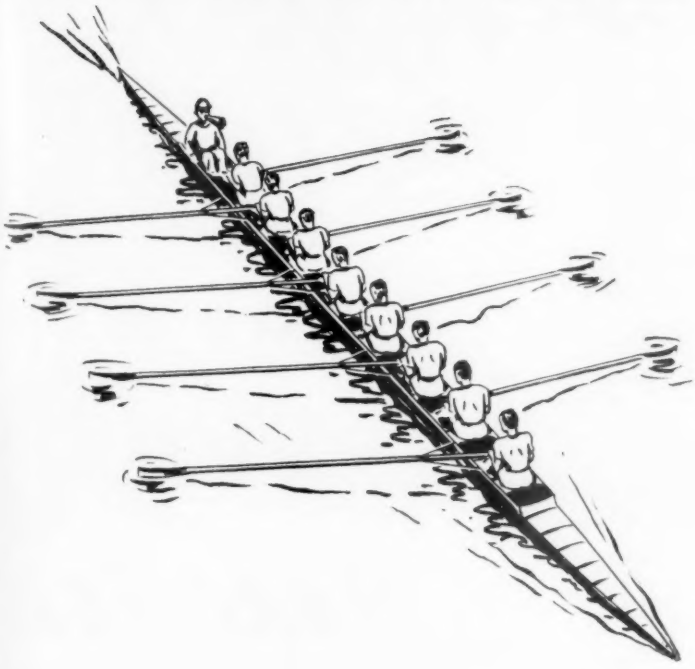
The Charles F. Elmes Engineering Works has become a part of the American Steel Foundries, Chicago, operating as a separate unit with Charles F. Elmes as general manager.

O. W. Trumbull has been appointed vice president and general manager of Greene, Tweed & Co., New York. He was formerly with the Asbestos Textile Company.

In honor of the memory of the founder and first president of the Monsanto Chem-

(Continued on page 198)

EVERY POUND PULLS IT'S WEIGHT

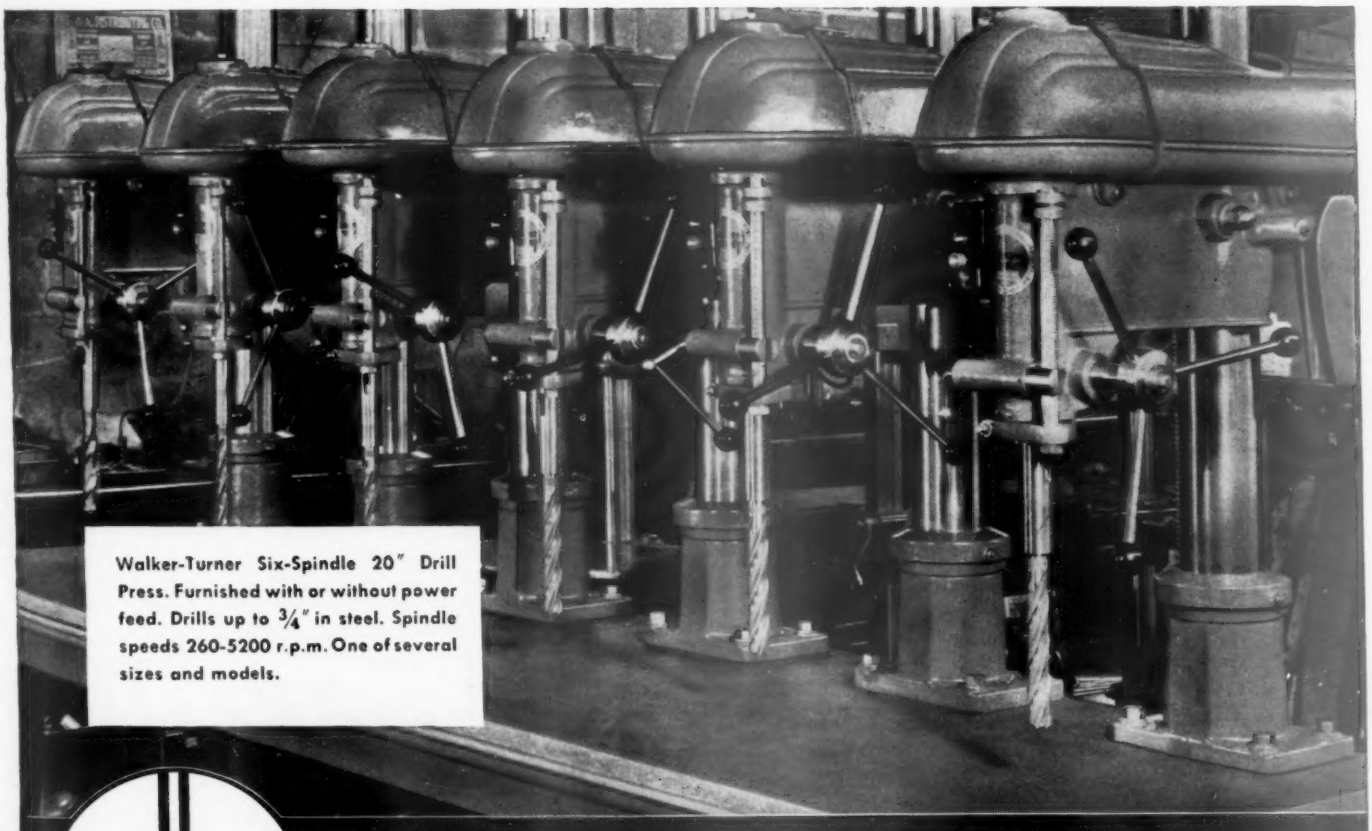


in a WALKER-TURNER MACHINE TOOL

There is not a wasted pound in a Walker-Turner Machine Tool. These highly efficient units are products of advanced engineering design and exacting selection of materials. Pound for pound, they have no equals in their capacity for work — in quantity or quality.

Progressive metal fabricating plants route lighter operations through production lines manned by Walker-Turner Machine Tools. They reserve their heavier machines entirely for heavy work. Thus no capacity is wasted. Perhaps *your* plant can improve production by means of Walker-Turner Machine Tools.

WALKER-TURNER CO., INC.
1333 Berckman Street, Plainfield, N. J.



Walker-Turner Six-Spindle 20" Drill Press. Furnished with or without power feed. Drills up to 3/4" in steel. Spindle speeds 260-5200 r.p.m. One of several sizes and models.

walker-turner COMPANY, INC. PLAINFIELD, N.J. U.S.A.

MACHINE TOOLS

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT-OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

When writing Walker-Turner please mention Purchasing

(Continued from page 196)

ical Company, the board of directors has decreed that the St. Louis plant of the organic Chemicals division will henceforth be known as the John F. Queeny plant.

Carl J. Meister has been appointed manager of sales for the Atlas Metal Stamping and Atlas Tool & Designing

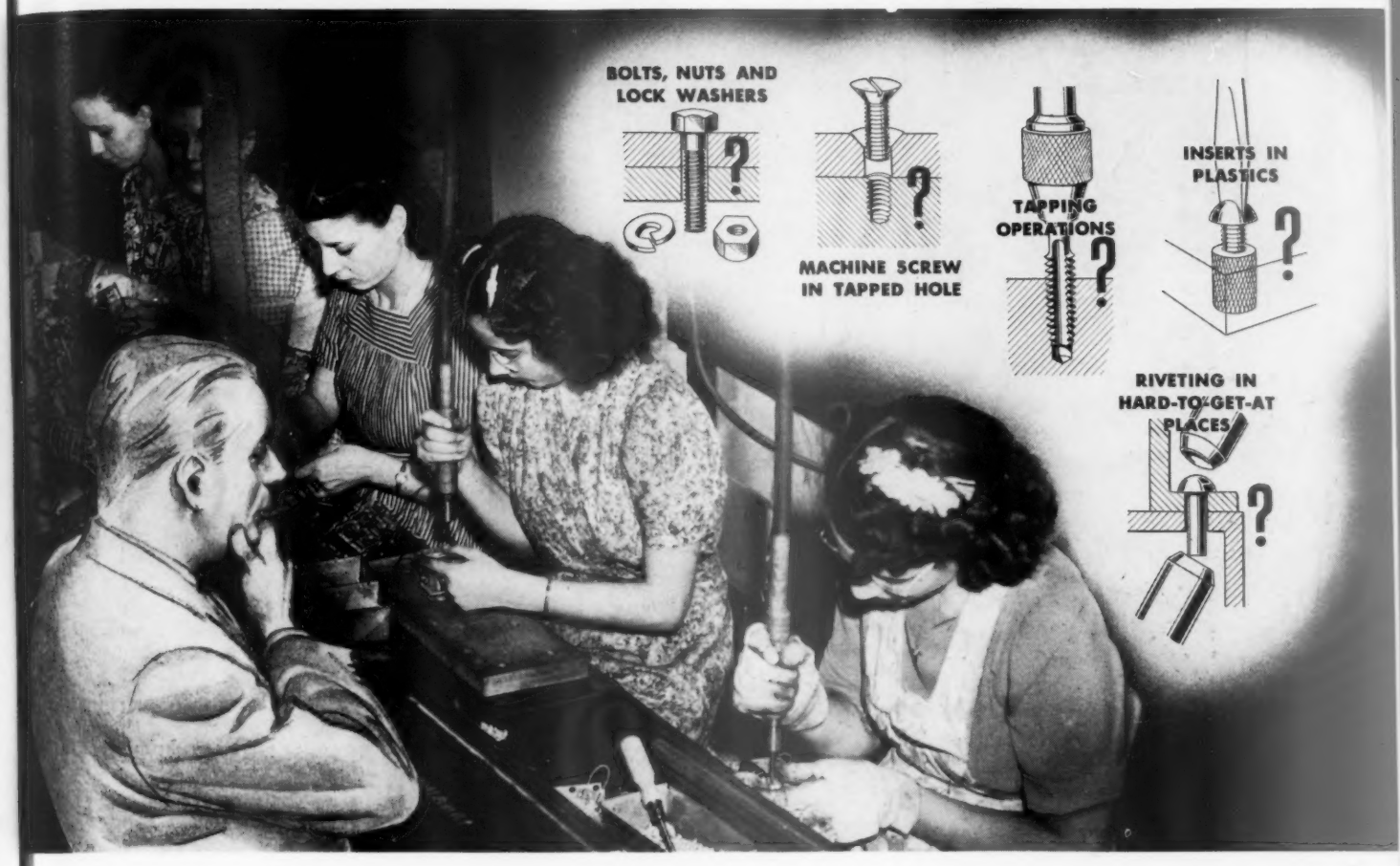
CARL J. MEISTER

Companies, Philadelphia, Pa. He was formerly field sales manager for the Allen Manufacturing Co., Hartford, Conn. He will give special attention to the designing and building of tools, fixtures, jigs, dies and special machinery.

David W. Hopkins, secretary and director of the R-S Products Corporation, Wayne Junction, Philadelphia, Pa., has

(Continued from page 200)

Question every fastening job



ASK—"Why Can't It Be Done the Simple Way.. with time-saving P-K Self-tapping Screws?"

That question is standard practise with hundreds of engineers and production men who are trying to conserve vital time and labor. They put it to themselves, and to their associates . . . not only at the drafting board but also on the production line.

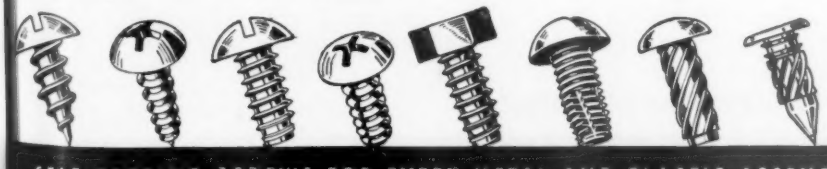
They don't expect Parker-Kalon Self-tapping Screws to be the best means of making EVERY fastening under ALL conditions. But they know that, for a *very large percentage* of metal and plastic fastening jobs, these Screws offer a combination of ease, speed and real security that no other fastening device or method can match!

How to Save Operations . . . to Save Vital Time and Labor

Make it *your* practise to see that you can't employ the simple Self-tapping Screw method before you put up with a more difficult one. Wherever P-K Self-tapping Screws can be used, operations will be eliminated, vital time and labor will be saved. You merely drive P-K Self-tapping Screws into plain, untapped holes. Such simplicity eliminates tapping and tap maintenance . . . solves the problem of getting scarce taps . . . stops fumbling with bolts and nuts and placing of lock washers . . . does away with inserts in plastics . . . cuts out riveting and welding in hard-to-get-at places.

Call in a P-K Assembly Engineer to check over fastening jobs with you. He can show you how to search out ALL opportunities to apply P-K Self-tapping Screws. And, he'll recommend them only when they will do the job better and faster. If you prefer, mail in assembly details for recommendations.

Change to Self-tapping Screws Overnight . . No matter what kind of material you're working with . . . light or heavy steel, cast iron, aluminum, brass, plastics . . . you can adopt P-K Self-tapping Screws to advantage. And you can make the change-over without interrupting production. No special tools or skilled help are required. Parker-Kalon Corporation, 202-204 Varick Street, New York, N. Y.



SELF-TAPPING SCREWS FOR EVERY METAL AND PLASTIC ASSEMBLY

PARKER-KALON

Quality-Controlled

SELF-TAPPING SCREWS

Give the Green Light to War Assemblies

(Continued from page 198)

been elected vice president of that company. He will continue in charge of the company's Valve Division.

Bernard H. Sullivan, manager of sales for the Westinghouse Lamp Division, Bloomfield, N. J., has been assigned responsibility for all commercial activities involving lamps and special products. Ralph C. Stuart has been appointed manager of manufacturing and engineering for the division.

J. D. Shaw, formerly research and production engineer with Metals Disintegrating Company has joined the Aircraft Parts Development Corporation, Summit, N. J. as head of the aircraft powder metallurgy activities.

A. F. Dobbrodt has been appointed Southern District Manager for Carboloy Company, Inc., of Detroit, with headquarters in Birmingham, Ala.

T. O. Eaton is now Assistant manager of sales, Power Transformer Section, General Electric's Pittsfield Works. He formerly was a member of the Industrial

(Continued on page 202)

For Perfect Performance at High Speed be sure your taps are kept sharp — and if they are WINTER H. S. Taps you may be sure they will stay sharp for long hours of fast operation.

No tool, however well made, can produce its full quota if abusively handled. If some of your newer employees don't know how nicely Winter Taps will perform if properly used, ask for the Winter Tap Data Booklet. Lots of non-technical, useful information in it on taps and tapping. A postal request will bring it.

A division of

THE NATIONAL TWIST DRILL & TOOL CO.

DETROIT, MICH.

Winter Brothers

COMPANY

Wrentham, Massachusetts, U. S. A.

When writing Winter Brothers please mention ***Purchasing***

(Continued from page 200)

Sales Department at Pittsburgh, later being transferred to Philadelphia as switchgear specialist.

Electroweld Steel Corporation is the new name of the The Oil City Tank & Boiler Co., Oil City. There have been no changes in management or directors.

W. G. Paton of Cleveland, and W. R. Engstrom of Seattle, have been made vice presidents of The Austin Company, Cleveland.

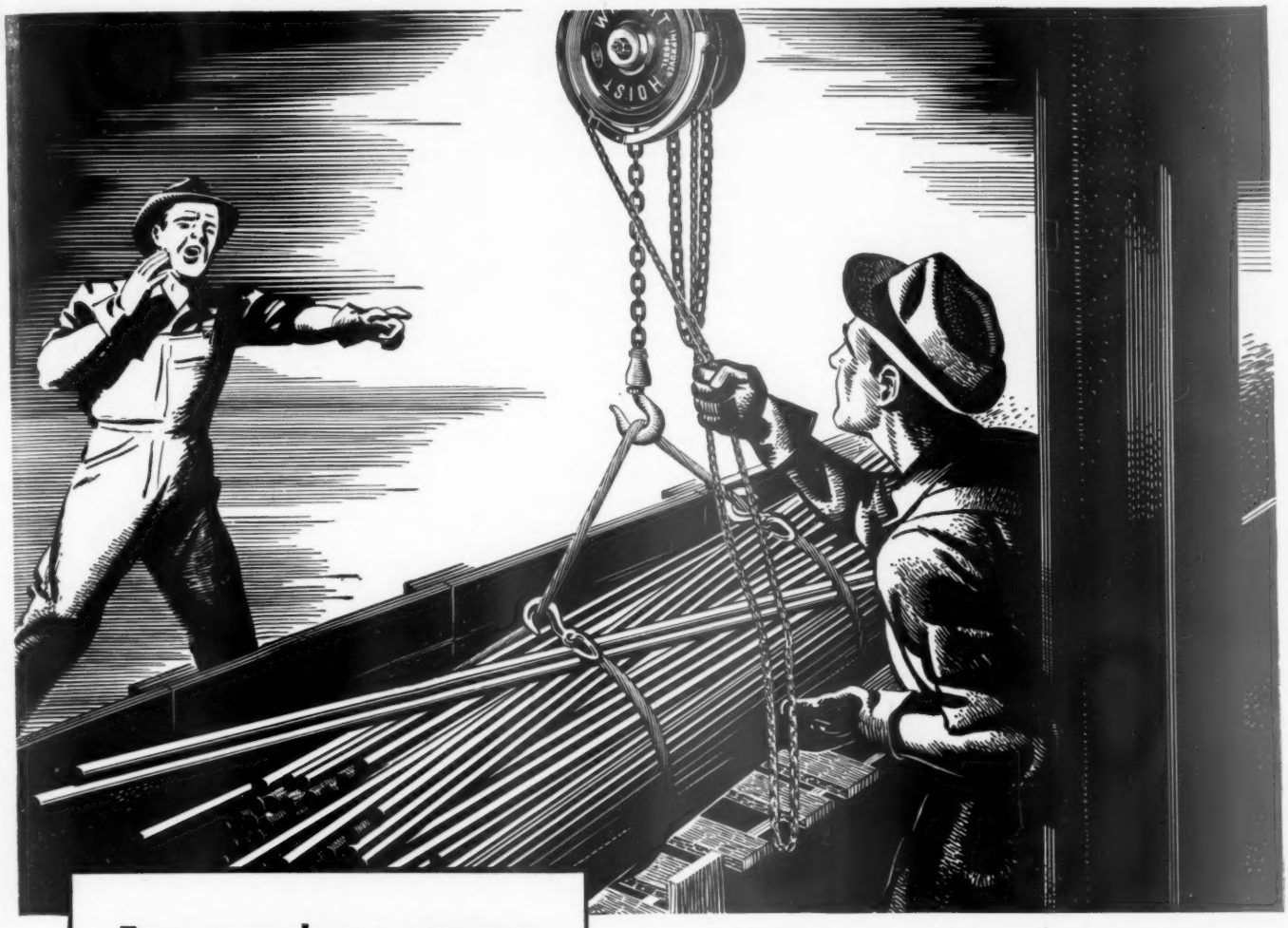
M. C. Morgan, formerly field service engineer, has been appointed assistant Pittsburgh Division sales manager of A. M. Byers Company. Mr. Morgan has been with the Byers Company since 1923.

P. D. Briggs, vice president and general sales manager, and Harry J. Lagodzinski, sales representative, Chicago office, were among twelve new members inducted into the 25-year Club at the annual banquet of the Ilg Electric Ventilating Company, Chicago.

Charles A. Crane has rejoined Templeton, Kenly & Co., manufacturers of lever, screw and hydraulic jacks, as assistant to the president.

W. I. Gladfelter has been elected vice president in charge of operations of the Crown Can Company, Philadelphia, in

(Continued on page 204)



Foremen have reason to warn new men:

"Take It Easy!

. . . YOU CAN'T MAKE THE SAME MISTAKE TWICE"

NEW workers in factories are in danger of accidents until they *think* about safety.

How to make them think—that's the problem facing safety directors, managers and foremen. How to teach inexperienced workers; how to remind old hands.

For example, in almost every operation where materials are lifted or moved, the new worker will see hoists and cranes, many of them bearing the names Wright or Ford.

But no machine is proof against ignorance or carelessness on the part of the operator. Therefore, the National Safety Council has issued special instructions for crane and hoist operators, as shown below. The Wright and Ford Divisions of American Chain & Cable recommend to all who work with cranes and hoists these safe practice rules.

SOME SUGGESTIONS FROM NATIONAL SAFETY COUNCIL FOR SAFE HOIST & CRANE OPERATION

1. Keep hands in the clear—*never under the load* as it is lowered—*never between the sling and the load* as it is about to be raised. Neglect of these precautions causes many injuries.
2. Don't stand between moving load and fixed object.
3. Keep out from under load.
4. Don't deposit load on inadequate support. In the case of stock which will roll, stops should be provided to retain material.
5. Keep angle between sling legs as small as practicable—and make sure sling is attached to hook and load so it will not slip.
6. Make certain that load is balanced and cannot slip.

Many other essential products for industry, transportation and agriculture are manufactured by the eleven divisions of American Chain & Cable, as listed below.

•

The American Chain & Cable Company is happy to cooperate with the National Safety Council in its nation-wide campaign to "Save Manpower for Warpower"—which is now being conducted at the request of President Roosevelt.

ACCO TRADE MARK

In Business for Your Safety

AMERICAN CHAIN & CABLE COMPANY, Inc.

BRIDGEPORT, CONNECTICUT In Canada—Dominion Chain Company, Ltd. • In England—The Parsons Chain Company, Ltd., and British Wire Products, Ltd.

Aircraft Controls, American Chain, American Cable Wire Rope, Campbell Cutting Machines, Ford Chain Blocks, Hazard Wire Rope, Manley Garage Equipment, Owen Springs, Page Fence and Welding Wire, Reading Castings, Reading-Pratt & Cady Valves, Wright Hoists and Cranes

When writing American Chain & Cable Company, Inc. please mention Purchasing

(Continued from page 202)

which capacity he will have complete direction of engineering and production.

C. E. Murray, vice president and general manager of the Willard Storage Battery Company, presented 57 new-25-year employees with gold watches for having reached their 25th anniversary with the company, at a banquet in the Hotel Cleveland, Cleveland, Ohio, attended by 175 veteran men and women having 25 or more years of service with the company.

Charles B. Robinson has been appointed General Sales Manager of the Sommerfield Machine Company, Braddock, Pa. In addition to his new duties he will continue as assistant to the president.

E. T. Gardner, president and general manager of the Gardner-Richardson Company, Middletown, Ohio, has been appointed to the board of directors of the Diamond Match Company.

✓ ✓ ✓

AMERICAN-MARIETTA ACQUIRES FERBERT-SCHORNDORFER CO.

Acquisition of the Ferbert-Schorndorfer Co., industrial paint manufacturer with plant and home office in Cleveland, by American-Marietta Co., Chicago, has been announced by Grover M. Hermann, president of the latter company.

The Ferbert-Schorndorfer Co. will be operated as an American-Marietta subsidiary, with David Andrew, who joined

the company in 1930, continuing as its president, and Guy Bartholomew, with Ferbert-Schorndorfer since its inception in 1922, as vice president. Mr. Hermann, who has been named board chairman of the Cleveland company, said no changes in management personnel were contemplated.

TO REFINE ALUMINUM SCRAP

The Bohn Aluminum & Brass Corporation, Detroit, has announced that formation of a new division to be known as Aluminum Refiners Division of the Bohn Aluminum & Brass Corporation. This Division will specialize in the refining of aluminum scrap into aluminum alloy ingot.

Ten acres of land, including excellent buildings, comprising a total of 125,000 square feet of usable floor space, have been purchased in the Detroit area. Furnaces and auxiliary equipment for the refining of scrap aluminum are now being installed and the plant will be under the management of Ernest Bell.

INLAND STEEL SUBSIDIARY CHANGES NAME

Wilson & Bennet Manufacturing Co., Chicago, a subsidiary of the Inland Steel Company, announces change in company name to Inland Steel Container Company. The company's line of manufacture has been expanded to include fiber containers.

ACCOUNTING AND RECORD KEEPING UNDER CMP

(Continued from page 60)

No. 5 provides that all orders for controlled materials for maintenance, repair and operating supplies be identified by the symbol "MRO".

A CMP-6 may be prepared identifying allotments as follows:

Allotment Identification	*Steel — Net Tons*	
	Carbon	*Alloy*
W-8-16	50	10
N-4-16	40	8
M-2-16	25	5
MRO-16	2	1
	117	24

The quantities shown opposite the allotment identifications "W-8-16", "N-4-16" and "M-2-16" are posted to these allotment cards in the "Orders Placed" column, reducing the balance. The purchase or delivery order number or the name of the supplier should be entered in the reference column. The quantities opposite the symbol "MRO" are posted to a separate allotment card for each controlled material, in order to furnish a complete record of all controlled materials order for use as maintenance, repair and operating supplies.

Orders placed for controlled materials to fill small orders received are identified by the symbol "SO" on the CMP-6, purchase or delivery order, and the quantities are posted to the "SO" allotment cards. If the

(Continued on page 208)

(Continued from page 206)

consumer buys material for small orders, the following would be added to the illustration shown above:

Allotment Identification	*Steel — Net Tons*	
	Carbon	*Alloy*
SO-16	2	1

CMP Regulation No. 1, paragraph (s-1) provides: "In order to prevent congestion of orders calling for delivery of controlled materials in the early portions of each quarter, no consumer shall (unless previously authorized in writing by the appropriate Controlled Materials Division) place authorized controlled material orders (with controlled materials producers or other suppliers) requesting delivery of the same controlled material either (1) in the first month of any quarter in an amount exceeding one-third of the aggregate amount of such controlled materials for which he has received allotments for the quarter as of the time of placing his order, or (2) in the first two months of any quarter in an amount exceeding two-thirds of such aggregate; provided, that, in the case of aluminum, during the second quarter of 1943, the limitations shall be 30% for the first month and 63% for the first two months. No consumer shall, however, be required by the provisions of this paragraph (s-1) to reduce a delivery order below the minimum mill quantity specified in Schedule IV. In no event shall a consumer request delivery in a greater amount or on an earlier date than required to fill his authorized production schedule, or in an amount so large or on a date so early that receipt of such amount on the requested date would

(Continued on page 210)

FLEUR-O-LIER'S Pledge:

"...THE SAME DEPENDABLE LIGHTING SERVICE WITH LESS CRITICAL MATERIALS..."

The latest WPB limitation orders governing critical metals have required all fixture manufacturers to further reduce steel and other metals used in making fluorescent lighting fixtures.

Consequently, it is more important than ever that war plants needing fluorescent fixtures should specify those wearing this label. For FLEUR-O-LIER fixtures will continue to be *tested, certified* and *guaranteed* as meeting the same rigid MAZDA lamp makers' specifications for maximum light output and reliable, balanced operation.

When you see the FLEUR-O-LIER label you know they're dependable.

Constant research and development have made it possible for FLEUR-O-LIER Manufacturers not only to conserve critical materials but also to continue meeting the demand for dependable war production lighting.

FLEUR-O-LIERS embodying all these developments will be available to war plants on suitable priorities.

NEW! The FLEUR-O-LIER specifications, written by lighting experts, are now in booklet form, together with the story of the FLEUR-O-LIER program and list of manufacturers. Write for your copy today. It will make a valuable addition to your lighting information. FLEUR-O-LIER MANUFACTURERS, 2139-3 Keith Building, Cleveland, Ohio.

FLEUR-O-LIERS

CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer who complies with FLEUR-O-LIER requirements

(Continued from page 208)

result in his having an inventory of controlled materials in excess of the limitations prescribed by CMP Regulation No. 2 or by any other applicable regulation or order of the War Production Board."

Accounting for Specific Allotments

Paragraph (m) of CMP Regulation No. 1 provides: That every allotment made by a consumer must be accompanied by "the controlled material required to fulfill the schedule" except in the case of orders coming within the "small order" provision.

However, if the allotment received is less than the quantities of controlled material required for the schedule of production placed with the secondary consumer, the secondary should immediately notify his customer and should obtain either (1) the additional quantities of controlled materials required, or (2) reduction of the production schedule to the number of units that can be produced from the quantity of controlled material covered by the initial allotment. When the allotment of material is less than the quantity required for the authorized production schedule, the manufacturer should proceed with production in the knowledge that he is responsible only for the delivery of the number of units which can normally be manufactured from the quantity of material allotted.

Consumers will not be required to maintain specific records of the production obtained from each allotment received. When a consumer makes delivery to his customer of the number of units called for in the authorized production schedule, it is not required that he account for the use of the specific allotment received.

Paragraph (u) (2) of CMP Regulation No. 1 provides: "A consumer who is operating under several authorized production schedules need not maintain separate records of production obtained from the allotment for each schedule provided that his records show that his use of material for his respective schedules is substantially proportionate to the amount of material allotted for each, and that his aggregate production of any product does not exceed his aggregate authorized production schedule for that product."

The records which a manufacturer normally keeps on material put into production and production of finished goods should be sufficient to show that the materials were used for the manufacture of the items covered in the authorized production schedules received.

Rejected Orders

If a producer is unable to fill any order for a controlled material, the consumer will be notified and will make the appropriate entry on his allotment records by reversing the entry made when the order was placed originally. When the order rejected is placed with another producer, it is recorded in the same manner as any other order placed.

Responsibility for Returning Unused Allotments

As soon as all quantities received on allotments have been reallocated or purchased, the balance of the allotment account should be exhausted. If allotments are not entirely used, the condition would be indicated by a balance on the allotment card. A consumer is charged with the responsibility of reporting promptly to the

(Continued on page 212)

(Continued from page 211)

appropriate Claimant Agency or Industry Division in every case where he is unable to use the full allotments received.

Transferring Unused Allotments

CMP Regulation No. 1 provides that a consumer requiring additional quantities of controlled materials on one program may transfer unused allotments from another program of the same Claimant Agency. Consumers must reflect such transactions on their allotment records by making the necessary adjustment entries. The quantities transferred are posted in the "Allotment Received" column of the allotment card to which the transfer is made and in the "Reallotted to Other Consumers" column of the allotment card from which the transfer comes.

In cases where transfers do not apply, the consumer must report unused balances to the Claimant Agency in the manner prescribed by CMP Regulation No. 1, and post the quantities reported to the allotment cards in the "Reallotted to Other Consumers" column.

Editor's Note: Since this article was written, an amendment to CMP Regulation No. 1 eliminated the use of form CMP-6. This does not change the principles of record-keeping and accounting set forth in the article. The new procedure requires that the information formerly entered on CMP-6 be now endorsed on the Purchase order for the material being processed.

In the illustration of sample entry on allotment cards, a purchase or delivery order placed pursuant to an allotment received has the status of an authorized Purchase Authority if properly endorsed with the appropriate allotment number covering the quantity being purchased.

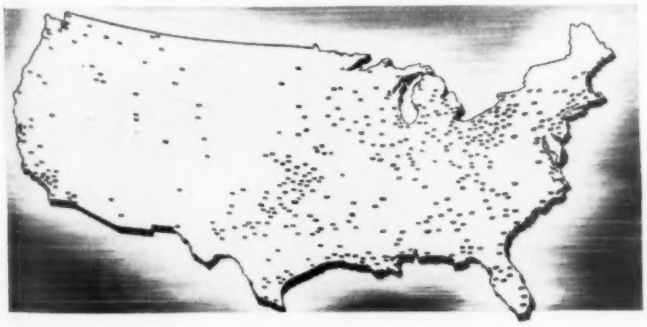
WHERE NIGHT LIGHTS BURN VALVES ARE ON THE JOB

IN plants large and small all over this country, the lights are burning every night to make the products of Victory.

And wherever lights are burning, valves are operating—in a large majority of cases Crane Valves. Valves controlling the power surging from boilers—valves saying "stop and go" to oil, gas, water and air—valves playing an important part in controlling the flow on process lines—valves and more valves that are vital to production.

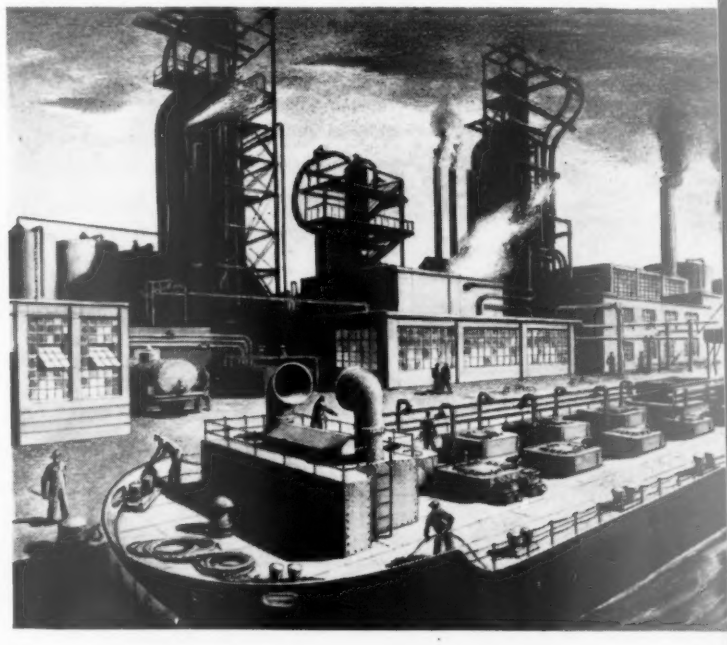
America needs valves in amazing quantities—needs the right kind of valves and needs them in a hurry. It is the control of the engineering back of these valves, control in the laboratories, control of every step in their production from the raw material to the finished product—control in their distribution and control of their final application of the right valve to the right job that has made Crane flow control so important to America at war. Flow control promises new and better service to American industry when the war ends.

Crane Co., 836 S. Michigan Avenue, Chicago, Ill.



The country is dotted with Crane Branches and Crane Distributors. Crane supply lines cross the map to make Crane products available to cities, towns, villages and remote outposts. Yes, control of distribution is one element, and a mighty important one, too, in Crane flow control.

Flow Control is necessary to mechanized war. The Army and Navy ▶ as they operate today depend on liquid fuel. Tanks and submarines—jeeps and destroyers—battleships and airplanes—all need liquid fuel—in quantities! Controlling the flow of oil from the time it gushes from the ground to the time it powers a vehicle of war is a big job—a job in which Crane Valves are helping. For the Army and Navy as well as industry are important customers for Crane products.



CRANE *FLOW* CONTROL

THROUGH CRANE VALVES

WPB ORGANIZES COPPER DIVISION

Organization of the copper division into four staff sections and nine operating branches is announced by H. O. King, director of the division. The realignment was made to simplify the operations of the division under the Controlled Materials Plan. Direction and co-ordination of division activities are established by the Office of the Director; staff functions cover programs, under Francis R. Kenney; distribution, under A. R. Mosler; resources, under G. B. Holderer as acting chief; and administrative, under V. H. Arnold.

1 1 1

SAFETY FOR WOMEN WORKERS

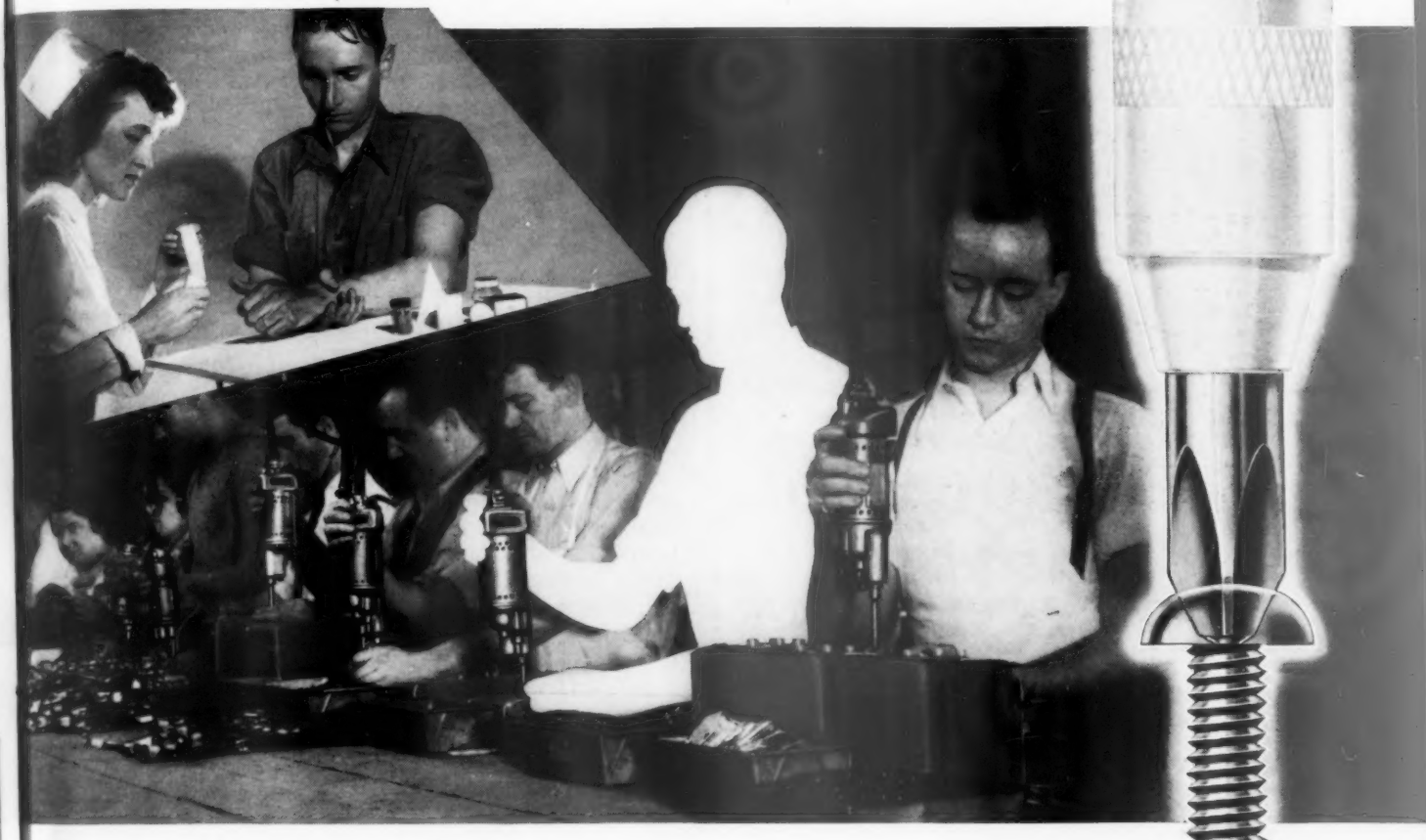
(Continued from page 67)

of the derma or true skin containing blood vessels and nerves under the epidermis or surface layer. Even before the war the U. S. Public Health Service issued figures showing that about 65% of the ailments peculiar to industry throughout the nation were to be classed as "industrial dermatitis". So with women added to the industrial forces in great numbers there is more than ever the need of prevention. The prevention and protection are needed in every plant where employes come in contact with dirt and grime; with oil, grease, paints, lacquers, thinners, and other solvents which do not readily dissolve in water; or with alcohol, acids, or other substances which do readily dissolve in water.

This is even more important for women than for men. Men are willing to let their hands be more or less grimy after work rather than irritate the skin with

(Continued on page 216)

PREVENT CASUALTIES in Your Screw Driving Army



PHILLIPS SCREWS END DRIVER-SKIDS!

"Speed up, and do it safely!" That's 1943's war production challenge. This year we can't afford another sacrifice of 500 million worker days to preventable shop accidents . . . like injuries from skidding screw drivers.

Safety measure No. 1 for screw driving operations is accomplished when you specify screws with the Phillips Recessed Head. The driver *can't* slip out of the recess to slash a worker, or damage the work!

Relieved of fear, workers naturally step up speed. And, the *automatic centering of driving force* in the scientifically designed Phillips Recess eliminates many other handicaps to speed: the fumbling, wobbly starts . . . re-driving of slant-driven screws . . . removal of broken-head screws . . . reclaiming of marred parts. Fast, faultless, *safe* driving becomes automatic, even for "green hands." Power driving becomes practical.

They cost less to use! Compare the cost of driving Phillips and slotted head screws. You'll find that the price of screws is a minor item in your total fastening expense . . . that it actually costs less to have the many advantages of the Phillips Recess!

KEY TO FASTENING SPEED AND ECONOMY

The Phillips Recessed Head was scientifically engineered to afford:

Fast Starting – Driver point automatically centers in the recess . . . fits snugly. Screw and driver "become one unit." Fumbling, wobbly starts are eliminated.

Faster Driving – Spiral and power driving are made practical. Driver won't slip out of recess to injure workers or spoil material. (Average time saving is 50%.)

Easier Driving – Turning power is fully utilized by automatic centering of driver in screw head. Workers maintain speed without tiring.

Better Fastenings – Screws are set-up uniformly tight, without burring or breaking heads. A stronger, neater job results.

PHILLIPS *Recessed Head* SCREWS

WOOD SCREWS • MACHINE SCREWS • SELF-TAPPING SCREWS • STOVE BOLTS

21 SOURCES

American Screw Co., Providence, R. I.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
The H. M. Harper Co., Chicago, Ill.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
The Charles Parker Co., Meriden, Conn.
Parker-Kalon Corp., New York, N. Y.
Russell Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Reading Screw Co., Norristown, Pa.
Pheoll Manufacturing Co., Chicago, Ill.
Scovill Manufacturing Co., Waterville, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.

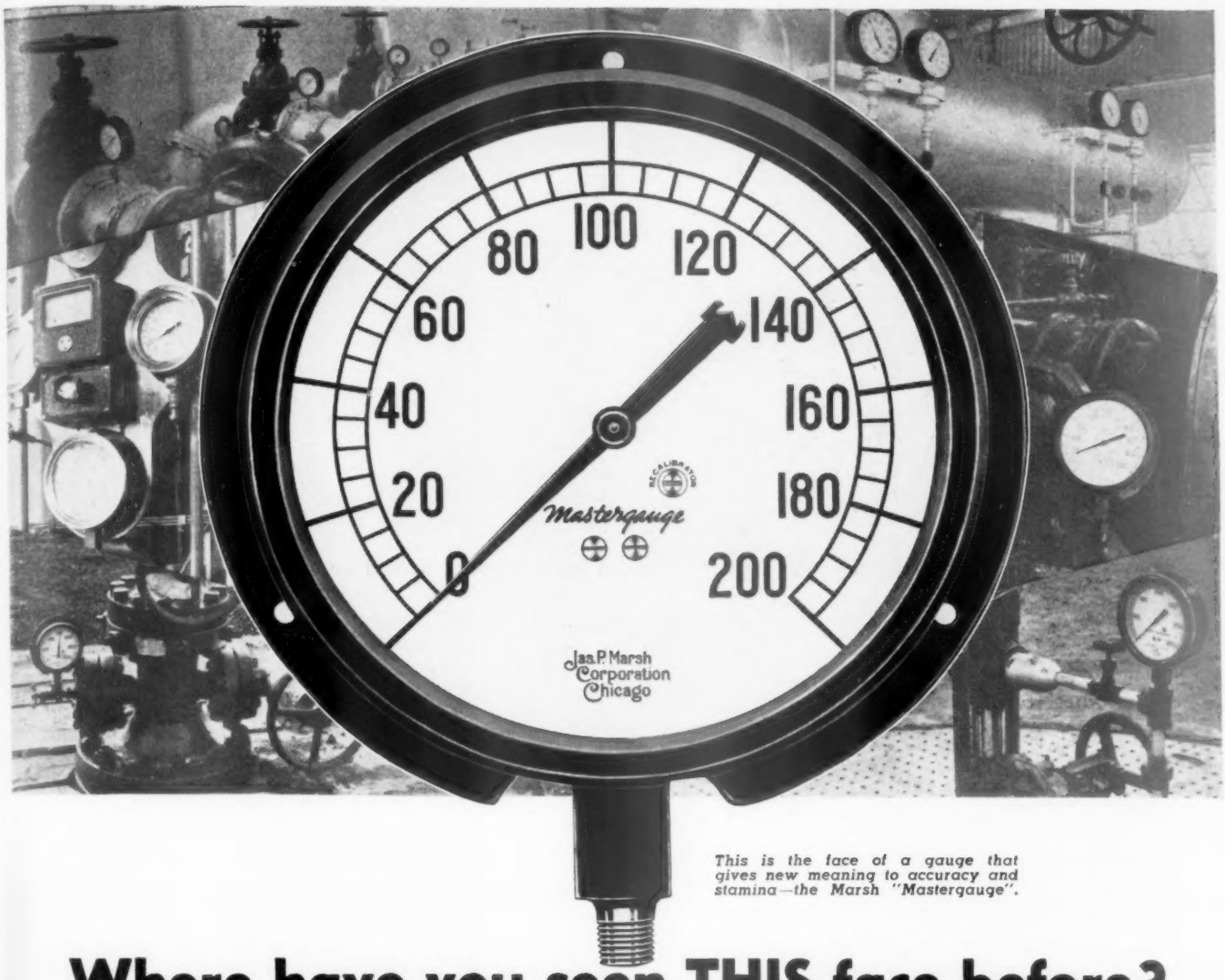
(Continued from page 214)

excessive efforts to keep their hands clean. Not so the women, with their manicures. Factory foremen and safety engineers in war plants have had to warn the new women workers against using rough abrasive soaps in washing their hands after work, since such abrasives cause the outer skin to get raw and increase the danger.

The traditional method of protection of hands of course is the use of gloves. This has been developed in the war industries to a high degree, with many kinds of gloves on the market—gloves of canvas, leather, asbestos, rubber, neoprene, and other synthetics. Some are made with long protective gauntlets, others with open back, for ventilation. Gloves in these various types are made in small sizes especially for women. Besides protecting against solvents they keep finger nails from breaking, palms from developing callouses, hands from being disfigured with scars. But in many cases gloves cannot be used; as the safety check list of one well-known war manufacturer says: "No gloves around moving machinery."

Another method of protection against dermatitis, declared to meet requirements in 90% of the plants, is to have the workers, before starting in on their shifts, coat their hands with a so-called "skin shield", a neutral liquid or cream which dries into a flexible coating. This protects against dirt and grime and against oil, grease, paint, and lacquer not readily soluble in water. Buyers telling their production men about it should advise them, however, that this does not protect against acids, alcohol and other substances which are readily dissolved when water is applied.

(Continued on page 218)



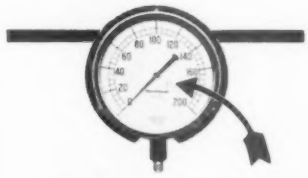
This is the face of a gauge that gives new meaning to accuracy and stamina—the Marsh "Mastergauge".

Where have you seen THIS face before?

IT'S a familiar face—the honest face of a good instrument. You have looked at it on boilers, compressors, tanks — innumerable places where proper, safe operation depends on accurate pressure indication. It was chosen in many cases by manufacturers who knew that the success of their products rested in no small part on the truthfulness of its pressure or vacuum indication.

Often that face is the face of a veteran—a gauge that has been at it a long time, operating under tough conditions. But as you trace back over the Marsh Gauges you have known, can you recall a single one of them that has ever failed to do its job right?

To build such a gauge requires more than good design and construction. It takes a great fund of practical knowledge to guide that design—knowledge that can be acquired only in the vast proving ground of industry. It takes the kind of knowledge of every conceivable service condition that Jas. P. Marsh Corporation has been accumulating for more than 75 years.



The Gauge with the "RECALIBRATOR"

A gauge built to Marsh Standards is not likely to be knocked out of adjustment. But if it is, the Marsh "Recalibrator" will quickly restore its accuracy. Simply turn the "Recalibrator" screw until the pointer is at zero when not under pressure. The gauge will then be right at all points on the dial. Unlike other methods of re-setting, the "Recalibrator" gets at the root of the error — re-establishes the relation of the bourdon tube to the movement — actually *re-calibrates* the gauge.

The accuracy and stamina that you have come to associate with Marsh Gauges is found in all Marsh products — Dial Thermometers, Recorders, Heating Specialties. Naturally, when U. S. Industry went to war, Marsh Instruments were given vital assignments for which their great record so well qualifies them. There is a Marsh Instrument for practically every pressure or temperature measurement requirement.

JAS. P. MARSH CORPORATION
2054 Southport Avenue, Chicago, Illinois

MARSH GAUGES

DIAL THERMOMETERS ★ RECORDERS ★ HEATING SPECIALTIES

When writing Jas. P. Marsh Corporation please mention Purchasing

(Continued from page 216)

In the many cases where this protective coating is effective, the procedure after work is simple. The dirt and grime, oil, grease or paint on the outside of the coating is first wiped off with a rag; then the "skin shield" itself is washed off with hand soap and cold water worked up into a lather; and finally the hands are rinsed clean.

Feet Protection: Women's shoes of ordinary modern styles are hazards on the war plant floor. Their high heels cause ankles to turn, and the wearer may fall near machinery. Their open toes, or their soft leather, pick up bits of steel scrap, causing the wearer to trip or to suffer injuries to her feet. Those with rubber heels or soles cause slipping on wet spots on floors. To meet these hazards shoe manufacturers have brought out lines of women's armored foot-wear, called "safety shoes". They are offering low-heeled, closed-hard-toe, non-skid-sole shoes in styles that are proving popular with war-production girls.

For these six kinds of protection for women war workers, Purchasing Departments in companies about to employ them will be called upon to do two things. One is to buy such equipment as their companies are going to supply to the workers. The other is to inform superintendents and foremen what to advise women themselves to buy. For both purposes Purchasing Agents and buyers can take advantage of the experience of the companies already employing women, but the buying men for each company will have to lay emphasis on the specific conditions in their own company's departments where the women are going to work and will

(Continued on page 220)

WE GLORIFY AN ANCIENT ART

As We Further Develop the Age of Cloth

The Stone Age and other ages which have marked progress in man's advancement have come and gone. A few persist. Through all ages one alone holds its dominant position. Cloth is of all time, from the earliest to the present. Into the future we see it projected as the structure of many modifications serving many new uses — alone, or in combination with plastics, colors, printings, and finishes. We, at Holliston Mills, continue to pioneer in the development of cloth specialties — cloth finishes, modified and adapted to specific uses.

RESEARCH AND DEVELOPMENT — cloth has a permanent structure combining light weight with strength and flexibility. On or within this structure filling, coating and processing fits cloth for many uses. *Consider cloth — consult HOLLISTON.* In general, THE HOLLISTON MILLS can take any type of print cloth, sheeting, drill, twill, duck, in widths from 30" to 80", and can dye; coat with every type of coating, in any color desired; can stiffen fabrics to meet any required pliability, hand, bond, weight of coating, tensile strength, Elmendorf tear strength, for any industrial use.

BOOKBINDING FABRICS

(a) Waterproof, full coated, impregnated, linens and vellums; pyroxylin and other synthetic resin coatings and lacquer finishes; embossed, plain, super finished, contrast printing.

(b) Starch filled, coated, impregnated, mottled, linen and vellum; plain or embossed, special glazed and matte finishes; natural, rough and smooth finishes.

SHADE CLOTH

(a) Pyroxylin or resin impregnated waterproof, meeting Government specifications; all weights, widths and colors; print cloths, sheetings and ducks.

(b) Starch filled, water color, and Holland type shades; machine oil, oil tints, oil filled opaques; fast dyed duck shades; light-proof and translucent.

PHOTO CLOTH

Photo Mounting cloth (self adhesive), single and double adhesive.

REINFORCING FABRICS

All types of waterproof and starch-filled reinforcing fabrics and industrial cambrics, for books, file folders, file pockets, box stays; to be combined, gummed and plain. Various weights from the thinnest print cloth to the heaviest drills and twills.

SIGN, LABEL & TAG CLOTHS

Waterproof and starch filled. Designed for any purpose, for hand lettering, letterpress printing, offset printing. We can design a surface that will take any ink or meet any inking problem.

RUBBER SEPARATOR CLOTHS

Starch filled glazed sheetings and base treated starched fabrics for waterproof separator cloths.

INSULATING CLOTH BASE

Base treated and stiffened fabrics for insulating cloths; all weights, widths and thicknesses.

TRACING & BLUE PRINT CLOTHS

White and blue ink or pencil cloth; map cloth; blue print cloth, thin and regular, all widths.

LINING FABRICS

Shoe and drapery linings; starch filled, special filled, mercerized and shreiner finishes; straight backfilled finish; high lustre finish, all colors and widths.

COATED AND IMPREGNATED FABRICS

All widths and colors; synthetic resin, nitro cellulose, thermo plastic and thermo setting coatings; mildew proofing; fire, weather and water resistant finishes; gas impermeable finishes, etc., for war and industrial purposes.

BOOK CLOTHS Holliston cloths for bookbinding are world famous and the line includes a great variety of colors and finishes. Starch filled, Pyroxylin filled or coated. Special embossings. Any book or catalog bound in cloth is bound to be kept. Consider cloth binding for your business literature. Costs but a little more than paper. For attention and retention value cloth binding stands alone. Lesser bindings discount content value. Write for samples of Holliston Bindings. Make your new catalog a cloth bound book.

THE HOLLISTON MILLS, INC.

CONVERTING CLOTHS TO GREATER USE FIELDS

NORWOOD, MASSACHUSETTS

Sales Agents in Principal Cities

(Continued from page 218)

have to make selections for meeting those specific conditions. In this they can get help from the safety equipment industry, which is notably one that supplies tailor-made goods. Buyers can advantageously call on the representatives of that industry to help them, their superintendents, foremen and safety engineers study their problems and work out the best solutions.

In the final decision here is a place to avoid penny squeezing. The thing to do is not to get something that looks as though it would afford protection but to get something that will surely do so.

Then after the war is won purchasing agents and buyers can glory in the satisfying fact that they have been practical and in the more stirring fact that they have prevented wounds, have held down casualties, among the army of girls and women who have done their bit—at good pay but still their bit—by enlisting and serving in our war industries.

* * *

NATIONAL PURCHASING PATTERN

(Continued from page 77)

cerned, for it was found that the prices submitted by the low bidders meant a saving of forty per cent compared with previous costs.

Comparison of bids with prices previously paid for metal and wood equipment is of interest. The cost of the chairs was $2.93 each against a former price of

(Continued on page 222)

Not BAYONETS *made with* Rubber! . . . ?

NO—of course there's no rubber in these basic weapons which our fighting men are so capably trained to use. They're made of the finest steels, for the purpose, that the world can produce. But they are made—as are practically all military and civilian goods of modern manufacture—with the help of rubber . . . rubber in the form of many types of industrial operating equipment. This example of the extensive role played by mechanical rubber products in the war production program starts with miles of air hose operating pneumatic tools which speed ore mining, giant rubber conveyor belts hauling ore, loading and unloading freight cars and ore boats. Once in the mill, the ore and other components are made into steel with the aid of coke conveyor and elevator belting, other types of hose. And, finally, plants where actual conversion of metal into blades is performed depend upon rubber equipment for an equally great variety of services. . . . . .

Developing, manufacturing, improving rubber products for industry has been Republic's sole enterprise for over forty years. But Republic's engineers and chemists are busier than ever today . . . solving and surmounting the current obstacles to an adequate supply for the endless rubber needs of war industry. One of their most successful lines of achievement has, of course, been in the direction of rapidly increased application of synthetics. REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, OHIO.

. . .

• *Help to conserve the nation's rubber. See that your plant has a copy of Republic's "Handbook of Care in the Installation and Use of Mechanical Rubber Equipment." Write.*

Accredited Republic Rubber Products Distributor

Republic Distributors—leading representatives of their field—form a closely associated, nationwide network of service and supply depots, providing maximum efficiency on war industry's needs for mechanical rubber products. Call on your nearest Republic Distributor for the most prompt, capable attention to your requirements.

WE ARE PARTICIPANTS IN THE OWNERSHIP AND OPERATION OF NATIONAL SYNTHETIC RUBBER CORPORATION

THROW YOUR SCRAP INTO THE FIGHT

REPUBLIC RUBBER

HOSE • BELTING • MOLDED GOODS PACKING • EXTRUDED PRODUCTS

DIVISION OF

LEE RUBBER & TIRE CORPORATION

(Continued from page 220)

$4.34; that of the desks $4.94 against $8.11; and the movable tables $3.85 each against $9.95—a saving on this item of 61 percent. Also of particular interest is the range of the bids, the bids for the chairs running from $9,217.68 to $15,121.64; those for the desks, $11,529.96 to $38,511; while the bids for the tables varied from $1,289.75 to $4,773.75.

Undoubtedly the most interesting feature of this purchase incident lies in the fact that it apparently has established a Government war standard for school equipment. Feeling that the Bureau of Governmental Requirements might be interested in the developments, Mr. Brennan advised Mr. Maury Maverick, Chief, Bureau of Governmental Requirements, War Production Board, of the results. Mr. Maverick in expressing his appreciation of the information, declared it to be "exceedingly interesting, and it will be helpful to us in connection with processing applications from other schools".

* * *

CONTROLLING "CONTROLLED MATERIALS"

(Continued from page 79)

are expressed by a heavier straight line underneath the monthly line. In these two months we received around 120 tons against a cumulative total expectation of 160 tons, and the entry will be a heavy line starting at the left of the September column, extending through the

(Continued on page 224)

(Continued from page 222)

entire width of this column (taking care of 80 tons) and cutting half way into the October column, to the tune of 40 tons. The complete picture then appears as in Figure 4. The gap between the right end of the line and the right edge of the respective monthly column shows the deficiency against schedule. The width of this gap will show how serious the situation is and what measures are needed.

It has been pointed out above that a comparison can and should be made any time before the lapse of the period. The date at which the comparison is made (i.e., when the record is "photographed") is marked with a capital V. Suppose the October shipment of 63.8 tons comes through only on October 15th, but we inspect the chart on October 10th, we shall see the situation as shown in Figure 5. This will tell us at a glance that:

(1) The supplier is behind schedule for September.
(2) The September balance was not delivered subsequently in October.
(3) No shipment has been made against the October schedule.

Under these circumstances, it is high time to follow up the vendor vigorously, and see what can be done about getting deliveries. The fact that under the CMP the supplier must strictly observe the required delivery dates, detracts nothing from the general usefulness of the Gantt chart with all kinds of materials, where the date required, date promised, and date delivered, are to be compared and constantly watched.

In the case outlined above, at the end of October, the complete chart will appear as in Figure 6. The advantages of this method should be clear. While the

CMP makes such records particularly advisable, they can be applied to good advantage with all types of materials and purchase orders. It is noteworthy also that in procurement control the Gantt chart can be used in this simple form without the manifold variations and complications attaching to it in the field of production control.

HOW TO MAKE BELT DRIVES LAST LONGER

(Continued from page 81)

by your nearest belt shop. Or your belt supplier will do it for you. If you have many leather belts, buy clamps and rods and ask for book of instructions. Then you can make belts endless on the pulleys. Metal fasteners constitute the weakest part in any belt and a belt is no stronger than its weakest part.

3. Be sure your belt thickness is correct for pulley diameter.

The minimum pulley diameters for leather belts of different thicknesses are indicated in Table I. Do not use on pulley smaller than in this table or you will have trouble.

4. Be sure your belt is right size for the load.

To have belt driven machinery work properly, the machine must be provided with enough continuous and dependable power to handle all peak loads—no matter how frequent or severe the loads are. This means the full power of the motor or the lineshaft

(Continued on page 226)

(Continued from page 225)

must reach the driven machine through the belt and you must provide enough belt for this purpose.

Lineshaft Belts and Long Center Drive Belts.

If any such driven machine does not work perfectly first check the belt size. Ask any belt maker for the American Leather Belting Association 1939 horsepower table. Check the width and thickness of your belt with this table. If your trouble is real or continuous this will probably correct it.

Short Center Leather Belt Drives from Electric Motors or Gas Engines.

Short center leather belt drives are recommended only with an automatic belt tightening motor base (pivoted motor bases) used in place of motor slide rails. With these bases the leather belt is very efficient, the belts last a long time and there is practically no drive maintenance required.

Be sure you have large enough pulleys to keep the belt speeds up. Doubling the belt speed doubles the hp. a belt will transmit or cuts in half the stress in the belt for the same hp. Be sure that your motor pulley is not smaller than the diameter recommended by motor manufacturer. Nearly all unsatisfactory drives get that way because the small pulley is too small. See Table II for minimum diameters for NEMA motors.

HOW TO GET THE MOST OUT OF V-BELT DRIVES

1. In designing new installations always use larger sheaves than minimum recommended and use an extra

(Continued on page 228)

(Continued from page 226)

belt or two above the minimum number recommended. Additional material and cost is offset by considerably longer life.

2. Be sure to purchase *matched sets* of belts so that each belt will carry its full share of the load.

3. Don't force or pry the belts over the sides of grooves. Slide motor forward to put the belts on and then slide back to give tension. Better yet use a pivoted motor base under the motor and belts will go on easily and always be at the right tension when running.

4. Proper alignment of sheaves is very important to long V-belt life. Be sure the sheaves are lined up in both horizontal and vertical planes.

5. Keep V-belts tight. V-belts need correct tension the same as other belt drives. Check tension 36 hours after original installation and at frequent intervals thereafter check to make sure they have live, springy vibration when struck by hand.

6. Check sheave grooves to make sure they are smooth and not worn out of shape. If they are replace with new sheave.

7. Keep V-belt clean, free from dirt, grease and oil. No belt dressing is necessary. Just wipe with cloth or waste dipped in gasoline.

8. Never replace part of a set of V-belts with new ones. Replace the whole set with new V-belts and save the old ones for spares to be used with other old ones.

AMERICAN Phillips Screws

★ ★ ★

HELP UNSKILLED WORKERS GET SKILLED RESULTS WITH STRAIGHT, STRONG, SPEEDY FASTENINGS

Inexperienced hands catch on quickly to the fastest, easiest, most foolproof method of screwdriving ever devised . . . the self-aligned, non-slip driving of American Phillips Screws. And in no time, new workers develop machine-gun speed that often doubles production. For with American Phillips Screws *they can't miss* . . . because the 4-winged driver and tapered recess form one straight inseparable unit, until the screw has been set up tight. And there's a perfect fastening, with no burrs on the screw head . . . no ugly gouges on the work surface. With this modern method, operators are not tired by work that wore them out, back in the slotted-screw days.

American Phillips Recessed Head Screws are made under rigid laboratory check, and a unique system of piece inspection . . . two good reasons why more and more buyers of Phillips Screws are specifying "American Screw Co. brand."

4-POINT CONTACT MEANS FAST, STRAIGHT, NON-SLIP DRIVING

AMERICAN SCREW COMPANY

PROVIDENCE, RHODE ISLAND

Chicago: 589 E. Illinois Street *Detroit:* 4-258 General Motors Bldg.

COLD-FORGED WOOD SCREWS ★ MACHINE SCREWS ★ SHEET METAL SCREWS ★ STOVE BOLTS

When writing American Screw Company please mention Purchasing

GAS DISSOLVES IN METALS

Experiments during the last eight years have led to the conclusion that atoms of gas—oxygen, hydrogen or nitrogen—actually dissolve in the crystalline structure of some metals just as salt dissolves in water, states Dr. Harvey C. Rentschler, Director of Research, Westinghouse Lamp Division, Bloomfield, N. J. The gas particles then 'loosen' the electrons in this structure, causing them to be emitted from the metal more readily when heat or light is applied. The discovery, he says, should lead to the production of longer-lasting electronic tubes which will require less power to operate.

INTER-AMERICAN STANDARDS PROGRAM

Trade and industrial development of the Americas it is expected will be furthered by a program of Inter-American cooperation on industrial and engineering standards which has been launched by the American Standards Association. Latin American countries have shown a great deal of interest in North American standards.

THE NEED FOR INDUSTRIAL SCRAP

The Institute of Scrap Iron and Steel Inc., reports that 55,841,000 gross tons of scrap were used in 1942. In 1941, consumption was 54,400,000 gross tons. In 1940 it was only 39,750,000 tons. In 1917, consumption was only 26,800,000 tons. Average annual consumption from 1910 through 1941 was 23,000,000 tons.

Only on rare occasions through this war has full steel ingot production capacity been utilized. Lack of scrap prevented the nation from producing to the limit of its ability, and lack of good scrap cut down tonnages

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of individual melting units even though they were operating at capacity.

Industrial scrap is better than household scrap. In fact it is so much better and so necessary for steel production that the great pools of household scrap gathered by the newspaper scrap drive must wait to be joined by heavy scrap in the mills before it can be used.

Obviously, scrap generated through the machining, fabricating and converting of finished steel, or the scrap from obsolete equipment in factories, is more desirable than the bedsprings, galvanized water tanks and miscellaneous pieces which the average household yields, and which must undergo more preparation before it can be used by mills.

In order that full use be made of the millions of tons of household scrap which have been collected, Industry will have to do as thorough a house-cleaning job as was done by American housewives during Scrap Campaigns in 1942.

Approximately half of every finished steel product now serving as industrial machinery or fighting on the battle front is made of scrap.

Most scrap is charged into open hearth furnaces in steel plants. Considerable is melted in foundries and some is used in blast furnaces. In 1941, steel furnaces used 73% of all scrap, foundries 18%, blast furnaces 8% and miscellaneous 1%. In the open hearth, process steel is made by melting approximately 50% pig iron and 50% scrap. About half of the scrap is generated in the steel plant in the process of steel making and half is purchased from outside the steel plant.

In the foundry field, 65% scrap and 35% pig iron

(Continued on page 232)

(Continued from page 231)

is a fair approximation of the amount charged in cupolas to make castings.

Some steel is made in other ways, but our armament production would fall down immediately if we relied on steel made from 100% pig iron. Scrap is steel to begin with and therefore shortens the refining process. Scrap also is usually cheaper than pig iron.

Scrapless steel must be made in blast furnaces of which there are not enough in the United States to maintain production at anything like its present level. Furthermore, for every ton of pig iron, two tons of iron ore are required plus 1.2 tons of coal and about half a ton of limestone and other materials like fluorspar, in small amounts.

To supply enough pig iron to produce 90,000,000 tons of steel (which is approximately the capacity of the United States steel industry) it would require astronomical tons of iron ore, coal and limestone, far above the mining, transportation and handling facilities of the nation.

Judging from present conditions, scrap is here to stay. Each day the steel industry has been melting more scrap than the tonnage of steel in two Empire State buildings. Just to haul the monthly requirements of scrap to the United States Steel mills requires 51,000 railroad cars.

Industrial scrap is the most important of scrap sources, and may be broken down into three divisions: (A) Immediate steel mill scrap. This scrap is generated at the steel mill in the manufacture of steel. It includes ingot croppings, chips created in the conditioning of semi-finished steel and similar materials known as "home scrap because it never leaves the steel mill and is available for immediate charging back into the furnaces. In August 1942, mills consumed 2.5 million tons of home scrap against 1.9 tons of purchased scrap. (B) Short term industrial scrap. This is the waste or by-products of plants processing iron and steel into finished products. It includes pieces of material which remain after a stamping is made, turnings from the machining of a steel bar, or similar material. (C) Dormant industrial scrap. This classification includes products or parts which have completed their service of life, such as obsolete machinery, tools, dies, fixtures which are incapable of current or future use in war production because they are broken or lack parts which cannot be obtained, or for various other reasons. The WPB suggests the following rule in regard to dormant scrap: "If it hasn't been used for three months and no one can prove it can be used in the next three months, find a use for it or scrap it".

Today . . every Benjamin activity . . everything Benjamin manufactures . . is designed to contribute to the Winning of the War

OUR WAR TASK

IS TO HELP WAR PLANT PERSONNEL KEEP ON TOP OF THEIR JOBS!

By Providing the Lighting Units that Make SEEING Easier, We are Helping to Safeguard Employees' Health, Efficiency and Safety

BENJAMIN PRODUCTS

★

INDUSTRIAL
LIGHTING EQUIPMENT
including fluorescent, incandescent and mercury lamp units

EXPLOSION-PROOF UNITS
DUST-TIGHT UNITS
VAPOR-TIGHT UNITS
FLOODLIGHTING
EQUIPMENT

★

MARINE LIGHTING
EQUIPMENT
MARINE WIRING DEVICES

★

SOCKETS AND
OTHER WIRING DEVICES

★

SIGNAL EQUIPMENT
including Sirens, Horns, Buzzers and Telecode Relays

★

If you have a problem relating to the use of any of the above products, write the Benjamin Electric Mfg. Co., Product Information Department, (Division Y), Des Plaines, Ill., for data and recommendations. Benjamin services in the solution of such problems are available without cost or obligation of any kind.

It is the duty of everyone in war production and essential industrial and military tasks to keep in best possible condition; to be physically strong and mentally alert.

HOW "RIGHT KIND OF LIGHTING" HELPS US TO KEEP IN PEAK CONDITION

The personal experience of men and women employed in war tasks shows that the right kind of lighting is an important factor in keeping them on top of their jobs. By making it easier to see, the right kind of lighting minimizes eyestrain and thus reduces fatigue.

War production experience has shown that protection against eyestrain fatigue:

—makes the job less tiring

—increases alertness against accidents

—conserves reserve energy needed for sustained effort and provides additional protection against the ill effects of fatigue.

Today all of these things are vitally important. The ever increasing demand upon all of us for "*most production with the least amount of defects and spoilage*" is a goal that we cannot fully achieve unless we are physically fit.

Laboratory experiments and actual plant experience show that the basis of the right kind of lighting must be enough light, which in most war production plants should be somewhere between 30 and 50 foot candles—even more for certain types of precision work.

WHAT IS THE "RIGHT KIND OF LIGHTING"?

However, there is much more to the right kind of lighting than sufficient light for the specific seeing task. Ease of seeing depends also upon the quality of the lighting, its proper direction, diffusion, uniform distribution, and brightness.

It depends upon the elimination of glare from exposed and improperly shielded lamps in the lighting units; the elimination of reflections from shiny surfaces; the elimination of deep shadows and spotty lighting; and choice of proper lighting units for the seeing task and physical requirements of the location and operation.

To provide the lighting units and engineering counsel which will insure the right kind of lighting to war production plants, the army, navy and merchant marine, is Benjamin's major war task . . a task in which every man and woman in the Benjamin organization in the plant and in the field, is proud to have a part.

BENJAMIN ELECTRIC MFG. COMPANY, DES PLAINES, ILLINOIS

BENJAMIN
TRADE MARK

LIGHTING EQUIPMENT

The tungsten, molybdenum, chromium and other elements that harden your high speed tools are more critical than steel. To insure their preservation, segregate tools from other steel scrap — keep tools of the same alloy type together. To insure a continued and plentiful supply of new high speed tools, get your old tools and dies to the scrap dealer or back to the mill just as soon as you have no further use for them.

NATIONAL

NATIONAL TWIST DRILL & TOOL © DETROIT U.S.A.

TWIST DRILLS
REAMERS, HOBS
MILLING CUTTERS
COUNTERBORES
SPECIAL TOOLS

TWIST DRILL AND TOOL COMPANY

HOME OFFICE AND FACTORY—DETROIT, MICH.

Tap and Die Division—Winter Brothers Co., Wrentham, Mass.

Factory Branches • New York • Chicago • Cleveland • San Francisco • Distributors in Principal Cities

When writing National Twist Drill & Tool Co. please mention Purchasing

SPEEDIER WINGS

without sacrifice of strength, fire power or protection. That's what the increased use of cast magnesium parts is giving America's planes. This lightest of structural metals, as cast at the Howard foundries, has ample strength for many weight-saving applications in the planes which are inexorably giving the United States full control of the air. Every pound saved means a little more speed — greater aircraft losses for the enemy, and far fewer for us.

Every week sees an increase in the tonnage of magnesium airplane castings shipped from our new foundry; and tons of aluminum, brass and bronze parts, too — always more bomb racks, bomb parts, gun mounts, turret mounts, landing wheels, nose pieces — to name only a few. Our three foundries are all turning out an endless volume of cast nonferrous parts for ordnance, tanks, tank destroyers, ships, machine tools and essential war machinery.

Howard should be a source of supply of non-ferrous castings for you.

For armament today—
for utility tomorrow.

Howard Foundry Company
4900 Bloomingdale Road Chicago

When writing Howard Foundry Company please mention Purchasing

Fig. 1793—A large size Iron Body Bronze Mounted Gate Valve with flanged ends, outside screw rising stem, and taper wedge solid disc. Made in sizes, 2″ to 30″, inclusive, for 125 pounds W. P.

Also available with taper wedge double disc—Fig. 1444—sizes 2″ to 12″, inclusive.

The complete line of Powell Valves includes Globes, Angles, Gates, Checks, Reliefs, Y's, Non-returns, etc., in bronze, iron, steel, pure metals and special alloys to handle ever-increasing pressures and temperatures.

Millions of human beings depend on Boulder Dam to perform the function for which it was designed.

In the myriad operations of the mills and factories of America, valves must perform many diverse functions. And above all they must perform dependably.

For nearly a century Powell Engineering has been designing valves to meet all requirements for precise flow control. And Powell Engineering, Powell materials and Powell workmanship have made these valves above all things—*dependable*. That's probably why so many of today's industrial leaders turn to Powell for today's valve engineering requirements.

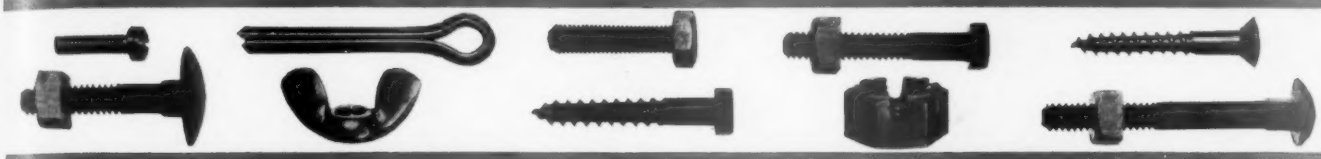
The Wm. Powell Company

Dependable Valves Since 1846

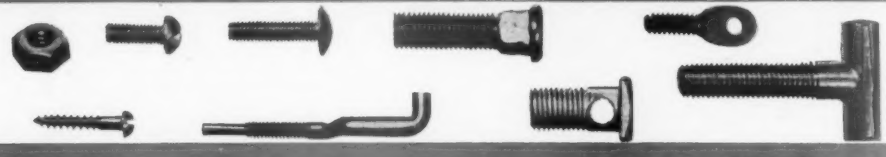
Cincinnati, Ohio

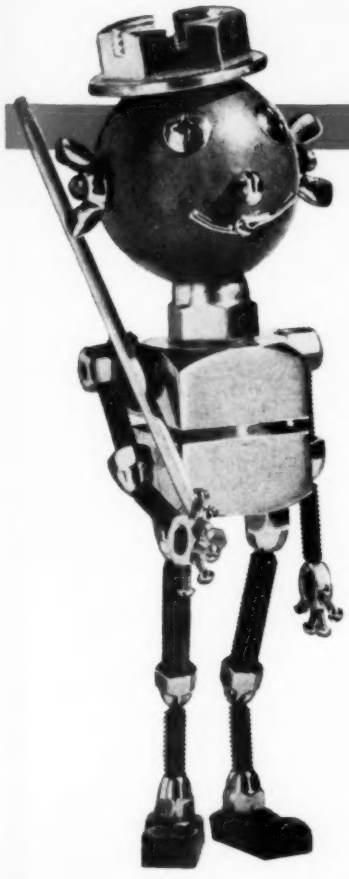
POWELL VALVES

When writing The Wm. Powell Company please mention Purchasing



WHAT TO DO
If You Need
FASTENING DEVICES





Use THE *NATIONAL* QUALITY LINE... or if more help is needed... get in touch with The NATIONAL Research Department

From the tiniest screw, bolt, nut or rivet to the very largest equipment, so complete and diverse is The National Screw & Mfg. Company line, that we can supply or make most any size or type of fastening.

National research men are constantly looking for new and better methods for the use of fastening devices in industry. Thus, if you have any questions or if you need help to solve any particular problem, write us at once. We'll give you full benefit of our 53 years of headed and threaded product experience.

National
HEADED AND THREADED
PRODUCTS

THE NATIONAL SCREW & MFG. CO., 2440 E. 75TH ST., CLEVELAND, O.

When writing The National Screw & Mfg. Co. please mention Purchasing

IF one of your problems is springs—dependable springs, that you must have in reliable quantities to keep your production at its peak—perhaps we can help you.

With our organization running in smoother-than-ever form we are producing more and faster and better products—to help you produce more, faster and better. We've learned short cuts and through experience have accumulated "know how" that is saving much time, trouble and headaches.

That is why we feel that your seemingly tough spring problem may find an easy answer here at Accurate. If you will show us what type—how many—and when you need springs or wireforms, we'll come up with answers you may find pleasantly surprising.

Send for the new Accurate "Handbook of Technical Data".
It's handy, compact, informative. You'll be glad to have it.

ACCURATE SPRING MFG. CO., 3825 W. Lake St., Chicago, Illinois

When writing Accurate Spring Mfg. Co. please mention Purchasing

WeldELLS have everything ★

It's a feature that tells the whole story . . .

TO the kind of engineer we're thinking about, *nearly right* is not right enough. He's the kind of fellow who makes sure that the strength of every part is as nearly proportionate to the stress imposed on it as exacting calculation can make it. To him, nothing less is *right*.

The feature of WeldELLS, pictured above, is certain to strike a responsive chord in such a man. It is based on mathematical calculations and practical tests which prove that the bursting stresses in an elbow are greatest at the crotch or inner wall —and show just how much greater.

In keeping with this finding, WeldELLS are given extra reinforcement in this region of greatest stress. To us, as to you, nothing less would be right!

We are not implying that welding fittings which lack this feature are bursting right and left. We are simply showing that in this, as in other features listed opposite, we have gone the engineering limit to make WeldELLS the fittings that have *EVERYTHING*.

Don't you agree that nothing less is right for *your* piping job.

★ No other fittings for pipe welding combine the features found in WeldELLS. In addition to that described, they include:

- **Seamless** — greater strength and uniformity.
- **Tangents** — keep weld away from zone of highest stress — simplify lining up.
- **Precision quarter-marked ends** — simplify layout and help insure accuracy.
- **Permanent and complete identification marking** — saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum** —assures full strength and long life.
- **Machine tool beveled ends** — provides best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World** —insures complete service and undivided responsibility.

PRODUCTS VITAL TO MODERN WARFARE

WeldELLS are only one of many Taylor Forge contributions to the war effort. One of many examples is Taylor Corrugated Marine Furnaces, essential to many merchant and fighting ships.

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P. O. Box 485

NEW YORK OFFICE: 50 CHURCH ST. • PHILADELPHIA OFFICE: BROAD ST. STATION BUILDING

When writing Taylor Forge & Pipe Works please mention Purchasing

"WAR OF NERVES"

U. S. A. Style!

The campaign of jitters once pushed so hard by the enemy is now a devastating weapon in *our* hands. From the humble shop in the corner of a loft to the giant corporation, not a firm exists that does not understand that every pound of production coming off the lines these days is not only a timely help to our forces, but a definite "morale buster" for the Axis!

But though we strain might and main right now to "pass the ammunition," TOMORROW will come — and with it a bumper demand for the thousands of new and improved products born of the war. When that time comes, you will find the Seymour products shown here to be among your most valuable aids in developing your post-war lines.

THE SEYMOUR MFG. CO.,
SEYMOUR, CONN.

◆

NICKEL SILVER
PHOSPHOR BRONZE
NICKEL ANODES
"SEYCAST" ANODES
BRIGHT NICKEL
BRONZE ANODES
BRASS ANODES
COPPER ANODES
ZINC ANODES

SEYMOUR SINCE 1878 *Non-Ferrous Alloys*

When writing The Seymour Mfg. Co. please mention Purchasing

The Welder-Wise Way to Buy Welding Heat

Before you buy any machine, check its WSR (Welding Service Range). Check its minimum to maximum output. Make sure it delivers the heat you want. Check the cost per ampere, *not* on a theoretical rating, but on maximum *actual* output. That's the *value* you pay for in any machine you buy.

Then compare, for example, the P&H Model WK300 which has a WSR of 60 to 450 amps. You get true welder value and pay less than $1 per amp per maximum output.

In addition, and at no extra cost, P&H Welders provide single control to speed up welding, instantaneous arc response, better arc characteristics, and other refinements which assure better welding results and lower cost.

See your nearest P&H representative or write to us for complete information on the welder-wise way to buy welding heat.

P&H ARC WELDERS

P&H also manufactures a complete line of alloy and mild steel electrodes.

General Offices: 4577 W. National Avenue, Milwaukee, Wisconsin

HARNISCHFEGER CORPORATION

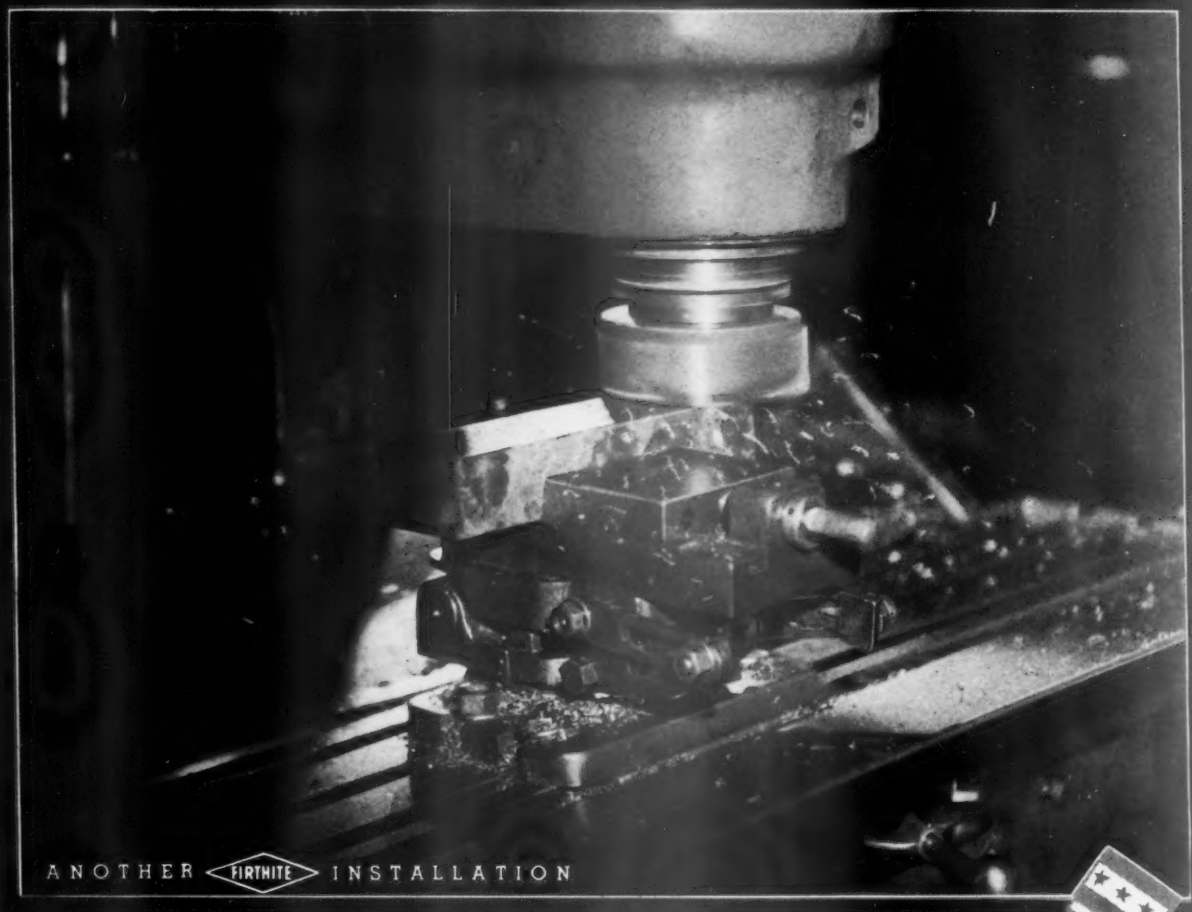
ARC WELDERS • EXCAVATORS • ELECTRIC CRANES P&H MOTORS • HOISTS • WELDING ELECTRODES

Canadian Distribution: The Canadian Fairbanks-Morse Co., Ltd.

When writing Harnischfeger Corporation please mention Purchasing

FOR FASTER, BETTER MILLING

A "HYPER-MILL"



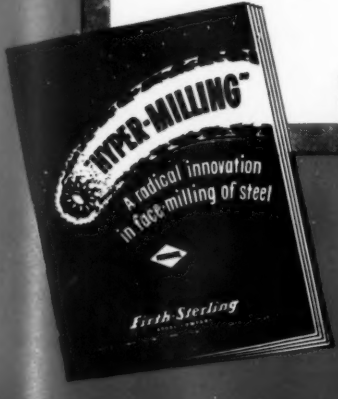
ANOTHER FIRTHITE INSTALLATION

A NEW DESIGN AND AN IMPROVED CARBIDE

that . . .

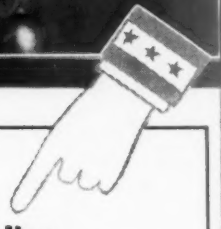
Perform at extraordinarily high cutting speeds;
Permit the milling of heat-treated alloy steels;
Produce highly burnished surfaces;
Result in a high production rate.

The new design and the improved carbide are described in our "Hyper-Milling" Bulletin FE-106, which is yours for the asking.



Firth-Sterling
STEEL COMPANY

Offices: McKEESPORT, PA. NEW YORK - HARTFORD - PHILADELPHIA
CLEVELAND - DAYTON - DETROIT - CHICAGO - LOS ANGELES



Use Tungsten-Titanium Carbide

The selection of Firthite Tungsten-Titanium Carbide for milling and almost all other **STEEL-CUTTING** operations avoids the use of Tantalum—a "scarce" and "critical" material.

FIRTHITE

FIRTHITE

THE "HYPER-MILLING" CARBIDE

The aircraft hose and the Mill-Supply Salesman traveled de luxe—and *Planes left the factory a week ahead!*

Fighting planes were grounded—inside the factory! Production was slowing—soon would stop unless critical hose could be had immediately. Not a foot of it anywhere in the City—ordinary shipments would arrive too late. What to do?

Just *one* thing to do—and the plane manufacturer *did* it! He called in his Mill Supply Distributor, who right away got the rubber company on long distance.

That night one of his men hopped the Limited—picked up the hose next morning—made an extra sleeper reservation—and traveled back with all that hose in a berth!

This incident is typical of the unusual services that many Mill Supply Distributors are rendering their customers during the Emergency.

That emergency delivery kept planes pouring down the line and saved the manufacturer a full week's production. Nobody *ever* will know how much those extra days' output have helped to speed the Peace!

It was all in the day's work for the Distributor. But it carries a big moral:— *in* a pinch or *before* a pinch, always call in the Industrial Supply Man.

You can depend on his resourceful help—we *know* you can, because for many years he and other Distributors all over America have represented us in selling Cle-Forge High-Speed Drills and Peerless High-Speed Reamers.

ARMY NAVY

Awarded May 22, 1942
Superseded July 13, 1942

The CLEVELAND TWIST DRILL COMPANY
1242 EAST 49th STREET
CLEVELAND

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

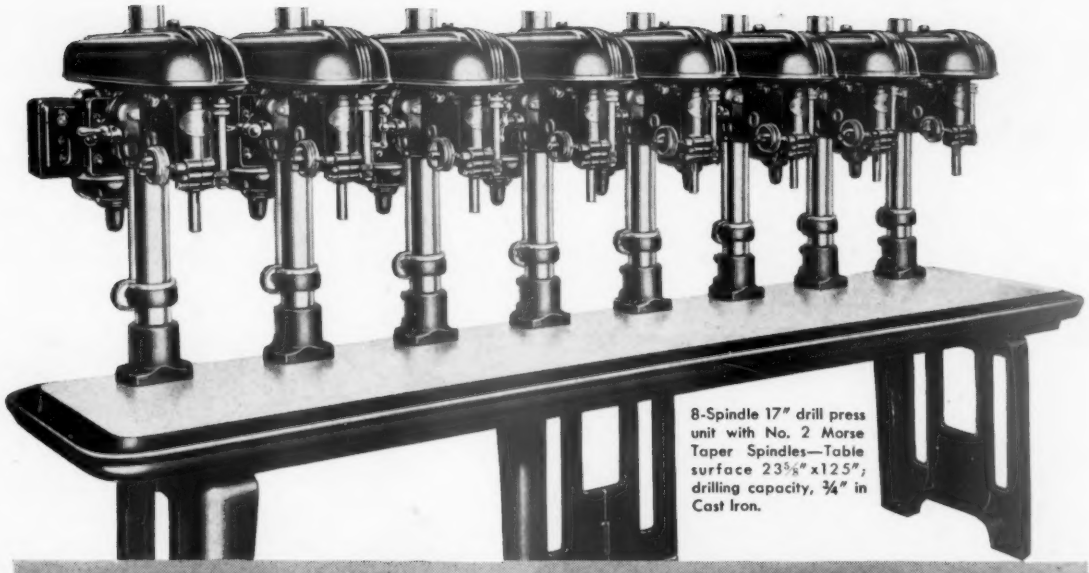
30 READE ST. NEW YORK · 9 NORTH JEFFERSON ST. CHICAGO · 650 HOWARD ST. SAN FRANCISCO
6515 SECOND BLVD., DETROIT · LONDON - E. P. BARRUS, LTD. - 35-36-37 UPPER THAMES ST., E.C.4

ARMY E NAVY

Awarded August 8, 1942
★

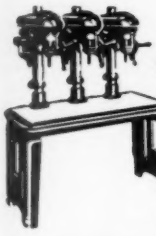
"CLEVELAND" DISTRIBUTORS EVERYWHERE ARE READY TO SERVE YOU

When writing The Cleveland Twist Drill Company please mention Purchasing

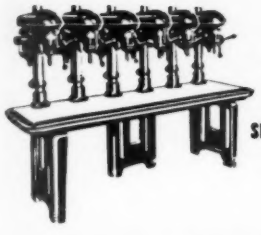


8-Spindle 17″ drill press unit with No. 2 Morse Taper Spindles—Table surface 23⅝″ x125″; drilling capacity, ¾″ in Cast Iron.

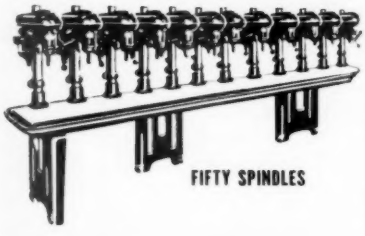
TWO SPINDLES



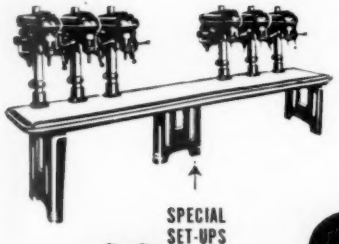
THREE SPINDLES



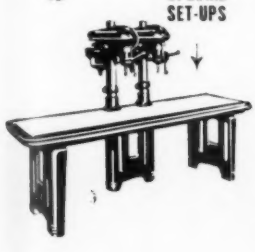
SIX SPINDLES



FIFTY SPINDLES



SPECIAL SET-UPS



DRILL PRESS COMBINATIONS

exactly as you need them!

New, Exclusive Delta Machine gives you as many spindles as you need *– spaced as you need them –* at astonishingly low cost!

Designed and developed by Delta, pioneer producers of low-cost production drilling equipment, these new machines now give you just the number of spindles you need for any production set-up—two, three, six, eight, ten spindles or fifty—to suit your exact requirements.

Available with 14″ or 17″ heads—or any combination of both, with Jacob's chucks or No. 1 Morse-taper spindles in 14″ heads; Jacob's chucks or No. 2 Morse-taper in 17″ heads—high speed or low speed. Completely flexible and remarkably low in cost!

This new type of machine—already in use in many high production plants—gives you an efficient, continuous production line, eliminating transferring between machines—and provides maximum working surface.

Ideal for special set-ups on long, heavy work, because sectional tables can be made as long as necessary. Tables are accurately ground and fitted and the entire unit is heavy, rugged and accurate.

SEND FOR CATALOG

For full details on this new "Tailor-made" drill press development—get in touch with your nearest Delta Industrial Distributor. Write us today, telling how many drill press heads you could use on a set-up like this, whether you need 17″ or 14″ heads or a combination of both, and how far apart you want the heads placed. We will gladly send you complete specifications, prices and any other information you wish.

THE ARMY-NAVY "E"—Awarded for excellence in the production of machine tools vitally needed in the war effort.

DELTA
MILWAUKEE

THE DELTA MANUFACTURING COMPANY
642-C E. Vienna Ave., Milwaukee, Wis.

Please send us without obligation full information on your new drill press development. We are interested in. . . drill presses on this set-up ....17″, ...14″, spaced .... inches apart.

Name .....

Address .....

City ..... *State* .....

When writing The Delta Manufacturing Company please mention Purchasing

A sudden roaring *Fire* killed in its tracks—in seconds

There's no telling how many man hours will be lost this year because of fires. It's anybody's guess how many plants doing vital war work will be shut down because of damage caused by water, sand and other agents and instruments used to extinguish fires.

But this is a fact: any plant using flammable chemicals, liquids in dip tanks, spray booths, storage, mixing rooms and laboratories can smother fires in split seconds with C-O-TWO and carbon dioxide, the fastest non-damaging extinguishing agent.

For the industries that depend upon dynamos, motors, transformers and other electrical equipment, C-O-TWO is invaluable, safe, non-damaging, non-conducting, fire fighting equipment.

IT'S SAFER *because* IT'S FASTER

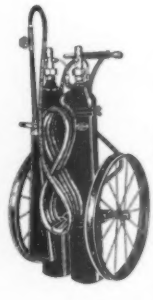
C-O-TWO kills fire in seconds with a sub-zero blast of carbon dioxide gas and there will be no damage to machinery or materials. You will be back in production without delays caused by water-flood and battering axes.

C-O-TWO is not specified as the only type of fire extinguishing equipment you may require. However, C-O-TWO is recommended and approved for protecting gasoline, oil, grease, paints, lacquer, alcohol, butane and electrical equipment against fire. C-O-TWO protects against shut-down caused by fire damage.

There are C-O-TWO portables of the hand and wheeled type, hose reel units and systems with manual or automatic operation for general and special risks.

INSTANT ACTION

Permanently installed automatic or manual system may be engineered to protect one or more spaces from the one C-O-TWO installation.



QUICK AS THE WIND

With C-O-TWO hand and wheeled type portables, carbon dioxide is directed at the base of the fire, killing the fire—without damage—in seconds.

FOR FAST KNOCK OUT

In laboratory or bench fires, these small, fast acting 4, 10 and 15 pound cylinders of C-O-TWO carbon dioxide gas kill fires almost instantly.

C-O-TWO

C-O-TWO is a registered trade mark. To be safe, specify C-O-TWO and this company's name.

C-O-TWO FIRE EQUIPMENT CO.

NEWARK, NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

When writing C-O-Two Fire Equipment Co. please mention Purchasing

HERE'S "MUD IN YOUR EYE" SCHICKLGRUBER!

★ "Mudding" the core for a vital aluminum casting . . . an important operation in speeding the production of Nazi Exterminating Equipment.

The skill and experience of this core and mold finisher, symbolizes the outstanding quality of Nationals' sand and permanent mold aluminum castings.

Good enough is not enough for Uncle Sam. That's why American fighting equipment is the best in the world. National aluminum castings are used in practically all of Uncle Sam's fighting equipment.

So, with slicks* in the hands of experienced men "pasting" and "mudding" cores, it's mud in your eye Schicklgruber.

**Name of tool used in pasting and mudding*

TENUAL

ALUMINUM CASTINGS

BUY U. S. WAR BONDS & STAMPS

THE NATIONAL BRONZE & ALUMINUM FOUNDRY CO

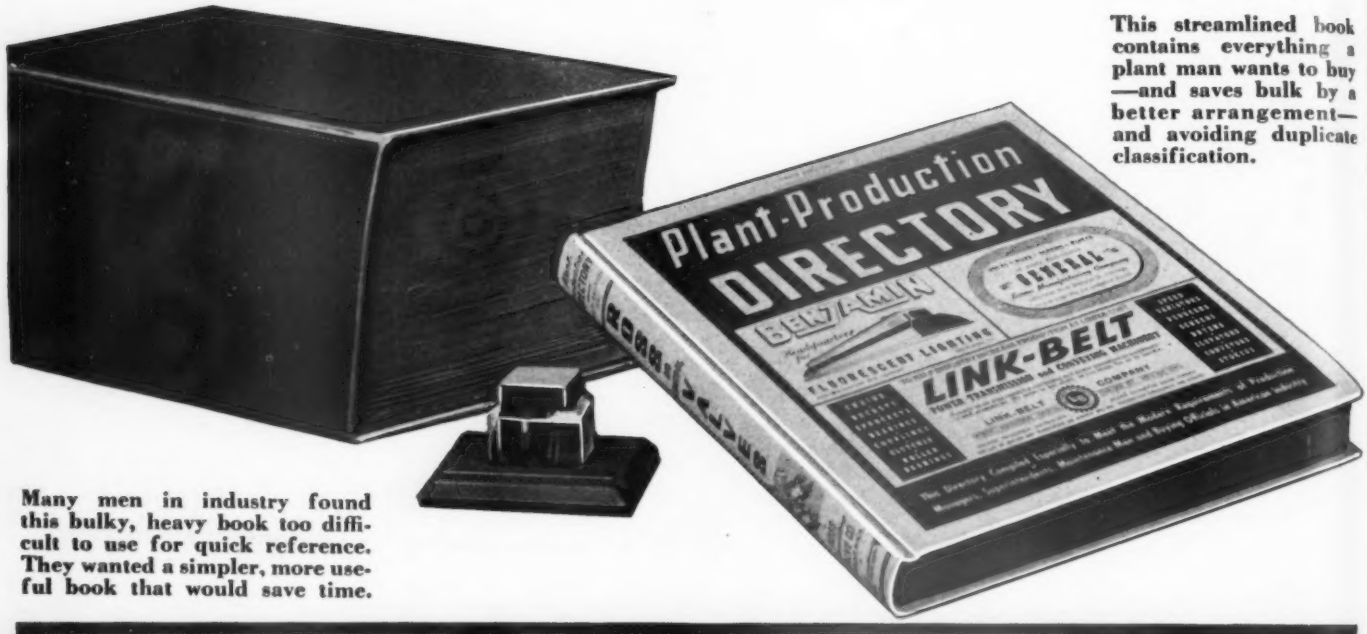
CLEVELAND, OHIO

NEW YORK—111 Broadway • CHICAGO—188 W. Randolph • DETROIT—Stephenson Bldg. • LOS ANGELES—405 S. Hill

MAKERS OF QUALITY SAND AND PERMANENT MOLD ALUMINUM CASTINGS

There is a copy in your office–

A New Buying Guide for Industry



This streamlined book contains everything a plant man wants to buy —and saves bulk by a better arrangement— and avoiding duplicate classification.

Many men in industry found this bulky, heavy book too difficult to use for quick reference. They wanted a simpler, more useful book that would save time.

Compiled to meet the Modern Requirements of Superintendents, Production and Buying Officials in Industry

"Boy, do I like this one. 5 lbs. as against 20 lbs. Easy to use—easy for even me to carry to anyone."

NEW FEATURES:

For the busy buyer who wants to know "where to buy it" and "who makes it" this is the modern, streamlined version of what an industrial directory should be. 15 lbs. lighter, fewer pages—yet complete and accurate. Contains Mechanical Data Section with useful tables and formula in most common use. Has a compact easy-to-use Chemical section.

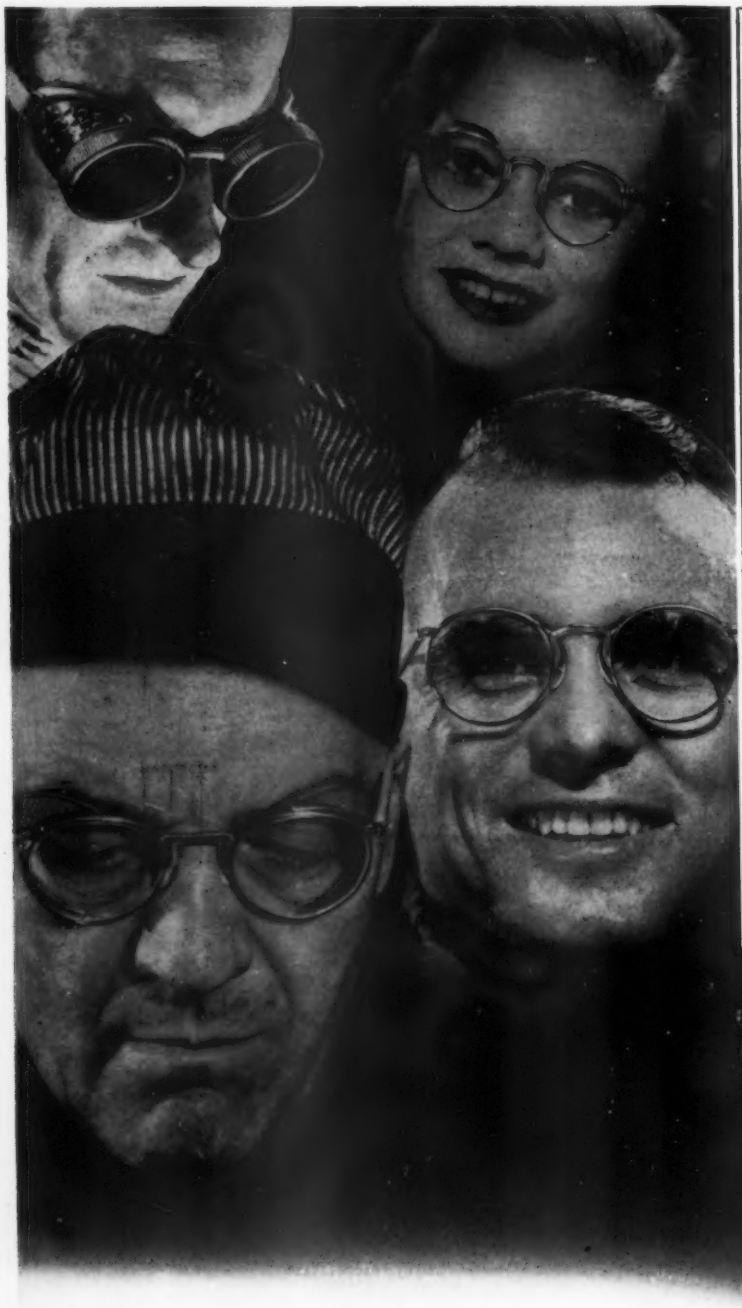
If you are not already a constant user as hundreds are, try it out on supply sources. Use it for a week — and you will then be a confirmed user. You are sure to like it for you can locate what you want in half the time required by the unnecessary bulky books this new directory replaces.

YOUR PLANT DOUBTLESS HAS A COPY OF THIS NEW DIRECTORY NOW. If not, write us.

Chicago Office:
333 N. Michigan Ave.

New York City Office:
205 East 42nd Street

Plant-Production DIRECTORY



BEGIN OUR *Second Year* OF THE WAR BY ELIMINATING EYE INJURIES

Install a Complete AO GOGGLE PROGRAM

During the first year of America's war against Axis tyranny, we lost, through industrial eye accidents, the services of a large force of our skilled soldiers of production. Avoidable eye accidents cost us and our allies enough man-days to build hundreds of bombers, thousands of tanks.

Stop eye injuries in your plant *now*, with a complete and carefully planned AO eye protection program. In addition to a line of comfortable, protective goggles, AO offers you the following important helps: Advisory services of a specially trained AO Safety Representative. Plant analyses to determine the maximum protection against every type of eye hazard . . . Posters . . . Charts and guides for correct eye protection procedure . . . and other informative literature.

Get in touch with your AO Branch Office today.

American Optical COMPANY
SOUTHBRIDGE, MASSACHUSETTS

When writing American Optical Company please mention Purchasing

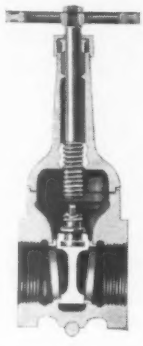
DON'T CUT OVERLENGTH THREADS ON PIPE!

Overlong threads on the pipe may strike the diaphragm of the valve and distort it, or may make it impossible to get a tight joint without the use of excessive amounts of joint compound —or other inadequate practice.

So, when cutting threads on the pipe, work to the gauge length established by standard. Do not exceed standard dimensions and standard tolerances.

Blow out the new line—and the valve—to make certain that no grit will be deposited on the valve seat. Then apply joint compound to the *pipe* threads—*not* to valve threads.

Take precautions such as these to guard your valves for the duration.



Don't reassemble a valve without exact knowledge of its construction. Avoid the possibility of ruining a valve—and having a costly shut-down—by consulting the valve manufacturer's catalog.

Write to Reading, Pa., general office, for copy of "VALVE DON'TS" —a poster for plant use that tells things NOT to do to valves.

READING-PRATT & CADY

MANUFACTURERS OF
READING CAST STEEL VALVES AND FITTINGS • PRATT & CADY BRASS AND IRON VALVES
D'ESTE VALVE AND ENGINEERING SPECIALTIES

Reading, Pa., Atlanta, Boston, Chicago, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco

A DIVISION OF **AMERICAN CHAIN & CABLE COMPANY, Inc., BRIDGEPORT, CONNECTICUT**

When writing Reading-Pratt & Cady please mention Purchasing

CLARK TRUCTRACTOR NEWS Page 3

THE SPIRIT TO WIN RIDES THE ASSEMBLY LINES

People may be interested in knowing that Saturday, January 9th, was the biggest day ever for the Tructractor Division, with a record of [redacted] machines. Let's see how quickly we can beat that record.

AT CLARK'S

We are all proud of our War job providing speedy and dependable material handling from factory to car to ship to advanced supply depots

CLARK TRUCTRACTOR
DIVISION OF CLARK EQUIPMENT COMPANY
BATTLE CREEK, MICHIGAN, U.S.A.

When writing Clark Tructractor please mention Purchasing

Tools that meet the need for *SPEED!*

Wherever hand tools are used on critical production, "tool speed" is a factor definitely to be concerned about. Inefficient hand tools . . . or tools poorly adapted to specific jobs . . . can hold down the performance of the best mechanic who ever swung a wrench.

Snap-on tools help meet today's need for speed . . . and *more speed.* They help turn out more work . . . and *better work.* Their flexibility and swift application, solid grip and powerful leverage, save precious minutes in every phase of production, assembly and maintenance.

3,000 Snap-on tools provide a wide selection of tool equipment for industrial requirements. 35 factory branches located in key cities assure prompt service. Write for catalog and address of nearest branch.

SNAP-ON TOOLS CORPORATION
8048-C 28th Avenue Kenosha, Wisconsin

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Washington says, "Finish It With ----"

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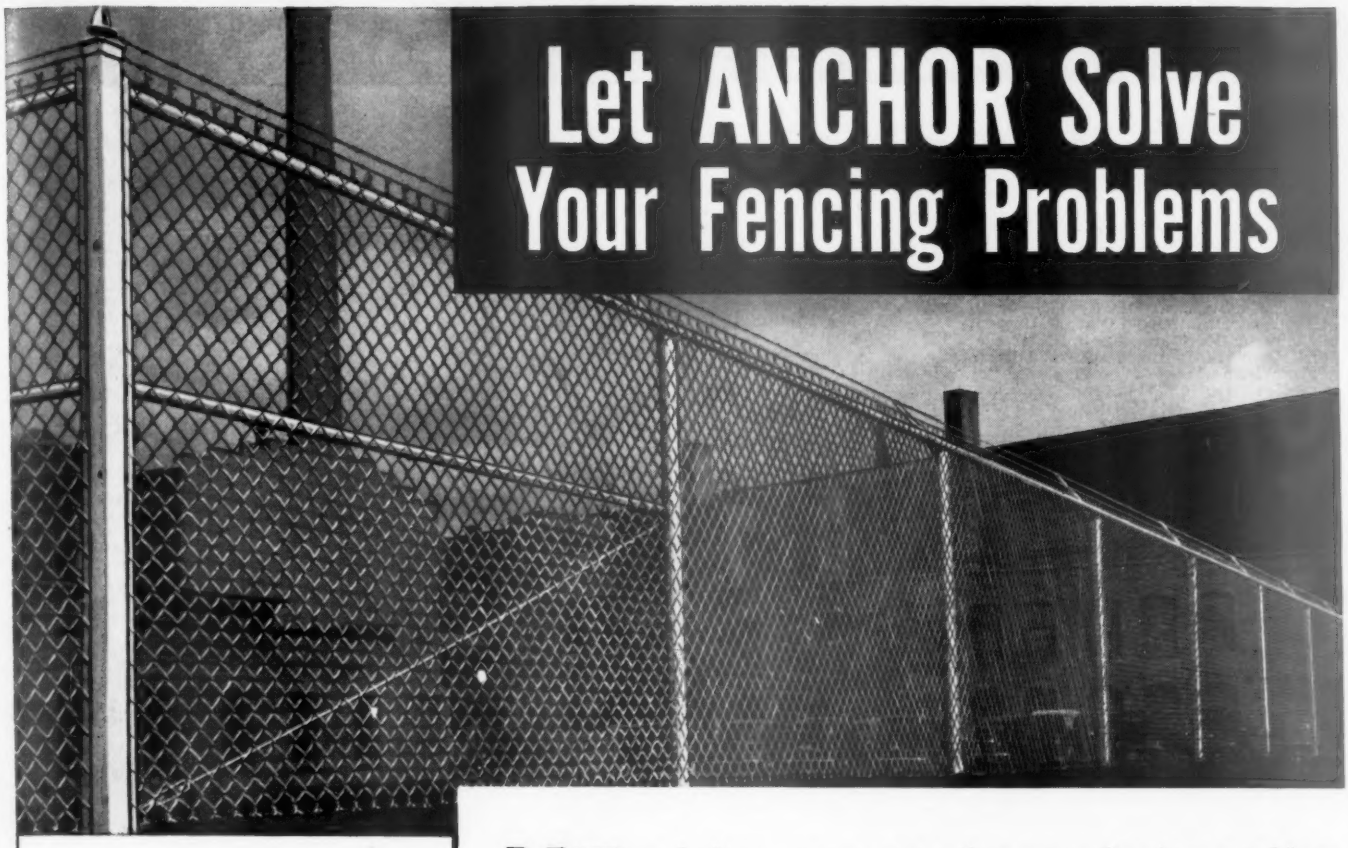

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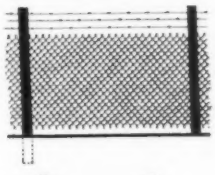

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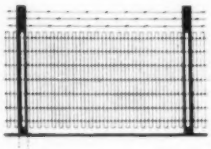

-3- *Barbed Wire on Wood Posts*

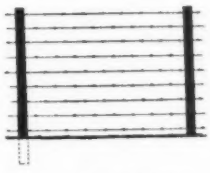

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Illustration No. 1 shows Chain Link Fabric of 12-gauge wire, galvanized after weaving, stapled to wood posts, and with 3 strands of barbed wire stretched on the posts above the fabric. This fence is 7 feet high and provides an effective barrier. It is available under priority regulations to the Army, Navy, Maritime Commission and their agents.

Illustration No. 2 shows a woven wood fence on wood posts with 3 strands of barbed wire. There are no restrictions against it, but priorities are necessary.

Illustration No. 3 shows a 7-foot protective fence which is composed of 9 strands of barbed wire stapled to strong wood posts. Priorities are necessary. Experienced erecting crews operating out of Anchor's sixteen branch offices can erect any of the described fences quickly and efficiently. If you require some other type of barrier, such as a board fence or concrete wall, Anchor men can do it better. If you want your present fence moved to a new location, or if it needs realigning, repairing, or painting, call in our experienced men. Our nation-wide organization means quick service.

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Advertisers IN THIS ISSUE

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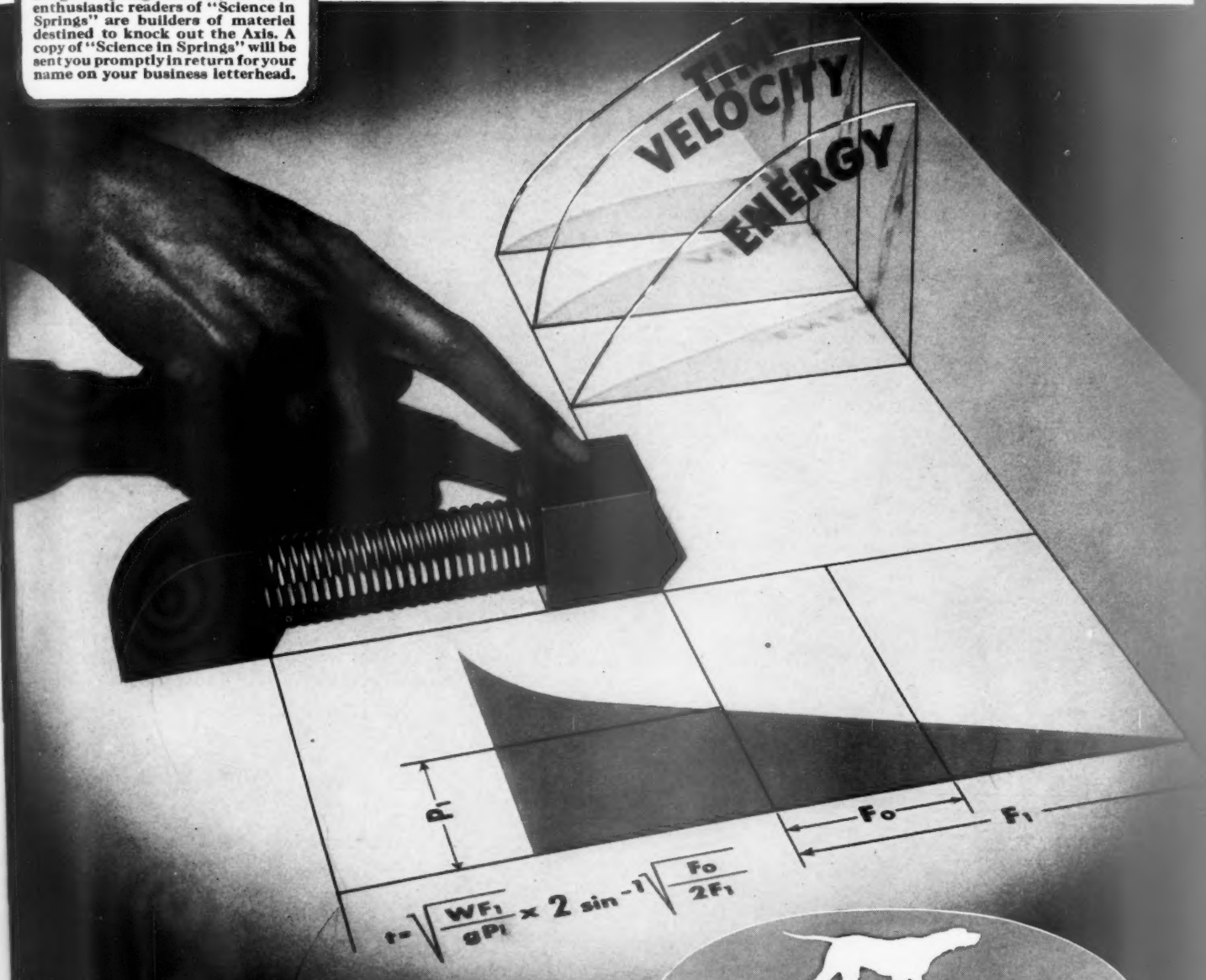
OUR "BOOK of the MONTH"

Have you ever read Adolph's "Mein Kampf"? Well, our book of the month —"Science in Springs" isn't anything remotely like it. It is neither lengthy nor windy. It contains readily useable information about the design of springs. In fact, the most enthusiastic readers of "Science in Springs" are builders of materiel destined to knock out the Axis. A copy of "Science in Springs" will be sent you promptly in return for your name on your business letterhead.

IN OUR very brief discussions about springs in our advertisements we have tried to be untechnical. However, there are Mickey Finns among spring problems, one of which is illustrated below. It concerns a grouping of conditions where a spring must supply the accelerating force to a mechanism, that is, a spring which will make a certain mass move over a certain space in a given time (or a certain moving mass *stop* in a given time, as in a shock absorber). These problems, involving a variable force, masses, frictional effects, etc., are mastered, but not too easily by a formula as shown. They are well beyond the sphere of rule-of-thumb spring makers, will make many a highly qualified M. E. reach for the aspirin. Specialized knowledge is required. For qualified spring engineers, such as those at Hunter, they are simply part of a day's work of finding the right spring for the job—the ONE right spring for the job.

ISSUE YOUR ORDERS... *We'll see them through. If you need springs for fighting equipment or for equipment essential to war production, write, wire or telephone us. We'll make them to your specifications or design and make them.*



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